The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 104, NO. 18 CHICAGO, ILLINOIS MAY 4, 1935

WATER INTOXICATION

REPORT OF A FATAL HUMAN CASE, WITH CLINICAL, PATHOLOGIC AND EXPERIMENTAL STUDIES

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Recently attention has been called to the dangers incident to the forcing of fluids, particularly in postoperative cases. De Takáts [1] mentions overloading of the circulation in cardiac weakness, production of general anasarca in Bright's disease, and accentuation of cerebral edema in concussion of the brain. However, one of the most interesting complications, which has not been mentioned, is the possibility of so-called water intoxication. Rowntree [2] in 1923 called attention to this phenomenon in man and reported a number of experiments in which he produced this condition in animals. He first noted what he interpreted to be a condition of water intoxication in a number of patients suffering with diabetes insipidus to whom he and his associates had given repeated doses of solution of pituitary. These patients had been in the habit of consuming from 8 to 10 liters of water by mouth daily without any untoward effects. When, however, they were given solution of pituitary and continued to consume their usual quantity of water, headache, nausea, asthenia, incoordination and a staggering gait rapidly developed, and in one instance he states that the patient's symptoms became "extremely alarming." This observation led Rowntree [2] to administer large amounts of distilled water by mouth to animals in an attempt to produce symptoms similar to those observed in the patients mentioned. In these experiments he was able to cause a definite and consistent series of symptoms characterized by asthenia, followed by muscular irritability, convulsions, salivation and finally death, which he believed to be due to water intoxication. Since these animals could be relieved of their symptoms, and in fact saved from death by the administration of salt solution, he concluded that the pathogenesis of the intoxication was probably due to an upset in the salt-water balance. Moreover, he made the interesting observation that it was impossible to induce water intoxication in animals that had been given 10 per cent solution of sodium chloride immediately before the administration of the water. In this regard it might be mentioned that both Moss [3] and Brockbank [4] have noted extreme muscular cramps in workmen who perspired freely and drank large quantities of water. These cramps were relieved at once simply by drinking salt water.

Knowing of these instances, we became interested in the subject of so-called heat cramps as a possible industrial hazard and communicated with a well known industrial surgeon who has charge of a large number of men working under high temperatures. He wrote as follows:

> In reply to your question as to the use of salt tablets among workers subjected to high temperatures, I wish to state that for several years we have placed 5 grain (0.3 Gm.) sodium chloride tablets in readily accessible places throughout the plant so that several times a day a worker may avail himself of these tablets. Before using these we noticed from fifty to 100 cases of dizziness, weakness, palpitation, nausea or vomiting and headache, and a common complaint was "inward nervousness" among the men. At this time, and since we have been using sodium chloride tablets, not over one or two men enter the first aid station with the above complaints, and almost invariably these men admit of not using the salt tablets. These results are of consequence inasmuch as several thousand men are involved, although the men are not required to take the salt tablets except where they are exposed to unusual temperature. Most of the men who have been employed in a similar type of work are familiar with the symptoms they get when they do not take salt tablets and actually will come into the first aid station to have them dispensed if they are not readily available.

The foregoing clinical observations strongly suggest a close association between water balance and the chloride of the blood.

Of great interest also is the observation of Rowntree that, in all his cases of experimental water intoxication, cerebral edema was noted. He felt that the convulsive seizures and subsequent death of the animal were due directly to the cerebral edema. He substantiated this conclusion by preventing the appearance of the convulsions by decompression of the skull.

So far as we have been able to determine from a search of the literature, there has been no fatal human case of so-called water intoxication nor had it been possible consistently to produce the phenomenon in animals by proctoclysis. There are, however, on record a number of instances in which definite clinical manifestations of water intoxication were observed. Thus, Priestly, McCallum and Benson [5] noted after drinking

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1. de Takáts, Géza: Push Fluids, the Surgeon's Postoperative Order, Am. J. Surg. 11: 39-44 (Jan.) 1931.

2. Rowntree, L. G.: Effects on Mammals of the Administration of Excessive Quantities of Water, J. Pharmacol. & Exper. Therap. 20: 135-159 (Oct.) 1923.

3. Moss, K. N.: Some Effects of High Air Temperature and Muscular Exertion upon Colliers, Proc. Roy. Soc. London, series B, 99: 181, 1923-1924.

4. Brockbank, E. M.: Miners' Cramp, Brit. M. J. 1: 65 (Jan. 12) 1929.

5. Cited by Rowntree.[2]

a rather large amount of water definite nervous manifestations typical of the early stages of water intoxication. Similarly, Amberg and Austin,[3] during experiments on skin elasticity in which they drank 3,000 cc. of water in a period of twenty minutes, noted the development of such severe muscular twitchings

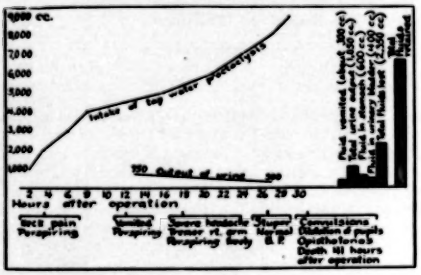

Fig. 1.—Postoperative course with fluid intake and output, with clinical data.

that they were unable to make elastometric measurements. In addition, Miller and Williams[5] observed the typical symptoms of severe water intoxication in patients with nephritis on whom large quantities of fluids had been forced.

Recently we have observed a case in which death apparently resulted from water intoxication wherein the patient absorbed 9,000 cc. of tap water by proctoclysis, and we have been fortunate in being able to produce identical symptoms and pathologic changes in seven

Fig. 2.—Oil immersion photomicrograph of liver biopsy taken during the operation. Note marked cloudy swelling and sinusoidal obliteration.

consecutive rabbits by the administration of large amounts of tap water by rectum.

REPORT OF CASE

History.—A well nourished woman, approximately 50 years of age, had a long history of gallbladder disease. Laboratory examination before operation was essentially negative. At operation, a thickened gallbladder containing a number of stones was removed without difficulty. A small piece of the liver was removed for microscopic examination, and a Penrose drain was inserted in the gallbladder fossa. For the first twenty-four hours following the operation, the patient's condition was excellent. Immediately following the operation, 1,000 cc. of tap water proctoclysis was started; figure 1 records the amounts and the time of administration of fluids, together with important clinical data.

Pathologic Changes.—The gallbladder was not enlarged. Its walls were slightly thickened and it contained about 200 small mulberry stones. The mucosa was pale and the trabeculae were flattened. Microscopically, the walls were moderately thickened and a few scattered round cells were found in the interstitial tissue. The piece of liver showed a very striking parenchymatous degeneration. The liver cells were swollen and remarkably granular. The sinusoids were almost completely obliterated by the swollen parenchymatous cells, and the liver cells appeared to be packed closely together throughout the entire section. Inflammatory cells were absent (fig. 2).

Necropsy.—This was performed within one hour after death and neither rigor mortis nor livor mortis was present. The

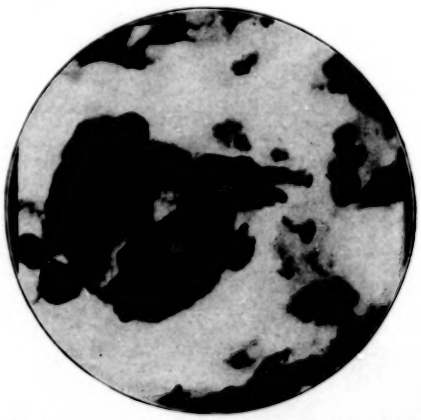

Fig. 3.—Oil immersion photomicrograph of a so-called corpus amylaceum in the lung. Observe fine pigment granules and adherent cells.

body was still quite warm. External inspection was not noteworthy. Edema was not present. An old healed midline surgical scar below the umbilicus was seen and a freshly sutured wound was present in the upper right rectus region. This wound was in good condition and one rubber drain was protruding from it. Inspection of the abdominal cavity revealed that the gallbladder fossa was hyperemic and the liver was somewhat enlarged. It weighed 1,800 Gm. and showed a slick, moist cut surface with quite indistinct lobulation. The bile passages were patent throughout. The stomach contained about 600 cc. of fluid and was dilated with gas. The bladder also was somewhat distended and contained about 400 cc. of urine. The descending and sigmoid colons were almost spastic, while the remainder of the bowel was of about normal caliber. The appendix, uterus and adnexa were absent and no adhesions were present in the pelvis or the right lower quadrant.

In the chest, the organ relationships were normal, the lungs were freely crepitant and no excess of fluid was present in the pleural or pericardial cavities. Careful examination of all the viscera revealed no abnormalities of importance not previously mentioned.

The cranial cavity was then investigated. The scalp and skull presented nothing of pathologic importance. When the skull cap was removed, the dura mater was found to be

stretched tightly and the underlying brain was of striking appearance. The subarachnoid space seemed to be completely obliterated and the pia arachnoid was almost bloodless. The cerebral convolutions were very much flattened and the sulci appeared in most instances to be completely obliterated, being seen as fine lines coursing over the cerebral hemispheres. No subarachnoid fluid was present and the brain surface presented a rather dry appearance. After the brain was removed it was found to be uniformly swollen in all diameters and gave the impression that it had been crowded into the cranial vault, having an appearance not dissimilar to internal hydrocephalus. When the ventricles were opened, however, instead of being dilated they seemed to be actually reduced in diameter and a maximuum of 2 cc. of clear fluid lay on the floor of each ventricle. The choroid plexus contained a cyst about 20 mm. in diameter in the left lateral ventricle and the whole plexus appeared swollen and edematous. Cross section through the brain showed a smooth homogeneous "wet" appearing surface and in the cerebral cortex the outlines between the white and the gray matter were much more indistinct than normal. Careful inspection of all the vessels showed no noteworthy alteration. No hemorrhages or foci of encephalomalacia were seen. The brain weighed 1,440 Gm.

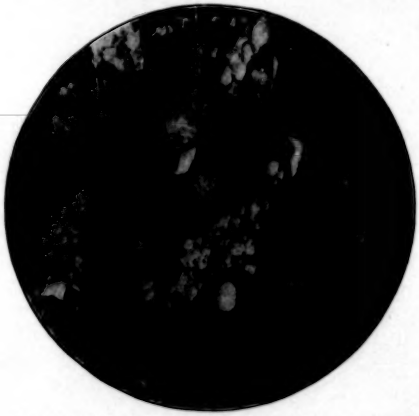

Fig. 4.—Oil immersion photomicrograph of liver post mortem. The liver cells are swollen and granular. The sinusoids are dilated and are filled with small rounded and oval bodies suggesting red cells that have lost their hemoglobin.

Microscopic Changes.—The lungs, liver, brain, kidneys and bowel were the only organs showing any alteration from the normal. The lungs showed many rather large corpora amylacea in the alveoli, which in many instances showed a few ragged cell fragments clinging from their outer borders, and many of them were seeded with brown pigment granules (fig. 3). Some of the alveoli contained a small amount of pink homogeneous precipitate suggesting fluid, and the interalveolar capillaries were distended with red cells.

The liver showed a rather advanced cloudy swelling, yet many of the sinusoids were quite dilated and filled with small rounded and oval bodies about the size of a red cell with sharply circumscribed outlines, and for the most part they were very faintly reticulated but otherwise colorless, somewhat suggesting red cells that had lost their hemoglobin (fig. 4).

The kidneys, aside from a moderate grade of cloudy swelling of the more highly differentiated tubular epithelial cells, were essentially normal.

In the stroma of the mucosa of the large bowel, scattered polymorphonuclear leukocytes were found.

The brain showed an apparent increase in vacuolization of the stroma, with what appeared to be an increase in the caliber of the perivascular and perineural spaces (fig. 5). In some areas a few round cells were present in the Virchow-Robin spaces, and the brain tissue surrounding the external limiting membrane of the perivascular spaces was quite edematous and

Fig. 5.—Section of brain of the patient under low power. Perivascular and perineural spaces show dilatation.

frequently showed a rather poorly defined, faintly reticulated, false space immediately adjacent to the limiting membrane (fig. 6). Some of the blood vessels contained masses of amorphous reddish brown material suggesting hemolyzed blood. The choroid plexus was distinctly edematous. The ependymal

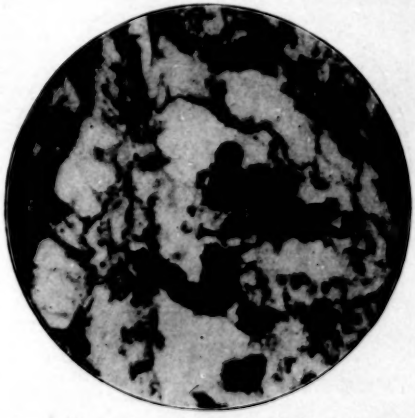

Fig. 6.—Oil immersion photomicrograph of brain of the patient. Observe dilatation of Virchow-Robin spaces with an infiltration of leukocytes. Peripheral to the outer limiting membrane of the Virchow-Robin spaces a false space is seen traversed by glial fibrils, and the adjacent brain substance is highly vacuolated.

cells were swollen and vacuolated and were undergoing proliferation and, in many areas, desquamation (illustrated in figures 7 and 8).

There were scattered leukocytes, mostly lymphocytes, present in the swollen, edematous, subependymal, connective tissue and

in some areas the subependymal accumulation of fluid was so striking as to leave large areas between the layers, producing in some fields a picture suggestive of cystic degeneration (fig. 9). The ependymal lining of the ventricles showed similar

Fig. 7.—Oil immersion photomicrograph of choroid plexus of the patient. There is proliferation, desquamation, swelling and vacuolization of the ependymal cells.

changes to those seen in the choroid plexus, and the underlying brain substance was distinctly edematous, showing a rather striking vacuolization (fig. 10).

Fig. 8.—Oil immersion photomicrograph of choroid plexus of patient. In addition to the ependymal change, subependymal edema is quite striking.

Special fat stains were employed on all the organs to eliminate fat embolism. No intravascular droplets were found in any of the viscera.

ANIMAL EXPERIMENTATION

The striking similarity of the clinical manifestations of the patient on whom these observations were made to the symptoms and changes observed by Rowntree in his experimental animals that died of water intoxication, together with the fact that our patient had absorbed some 9,000 cc. of water, suggested the possibility that her death might have been due to water intoxication. We therefore conducted a number of experiments on rabbits in an attempt to reproduce the clinical and pathologic picture shown by our patient, by the administration of water by proctoclysis.

Rowntree [2] stated in the report of his experimentations on water intoxication that he was unable to produce water intoxication by the administration of water by bowel, although he did mention that Greene [5] had apparently been successful in one instance. A search of the literature failed to reveal a report of experimental water intoxication produced in this manner. We felt, however, that, if we were correct in our assumption that our patient died as the result of the excessive absorption of water, we should be able to reproduce her symptoms by administering tap water in the same manner as that in which it was given to her.

Fig. 9.—Section of choroid plexus of patient under low power, showing a very striking subependymal accumulation of fluid.

Our technic was extremely simple. Healthy young rabbits, weighing approximately 1,000 Gm., were given 50 cc. of ordinary tap water by rectum through an ordinary rubber catheter, at intervals of one-half hour. In the first two animals, no further preparation was made, but since we found that in the third animal we were at first unable to produce intoxication in this manner we withheld all water and food from subsequent animals for a period of two days before water was administered.

Prior to the experiment, blood counts and blood chemistry studies were made on all animals. These were compared to similar studies made on the animals after the full development of the toxic symptoms. During the experiment the rabbits were placed in metal cages and all urine was collected and measured.

Seven animals were used and in each we were successful in our attempts to produce the picture of water intoxication. In all instances a complete necropsy and histologic studies were made.

Immediately following the death of two of the animals a chemical analysis of the muscles, liver, kidneys and brain was made for the chloride content by one of us (D. E. C.).

Fig. 10.—Oil immersion photomicrograph of ependymal lining of the lateral ventricle of the patient's brain. Ependymal swelling and marked vacuolization of the subependymal brain tissue is striking.

In every animal on which the experiment was performed, the clinical manifestations were exactly similar. Following the injection of the first 300 to 400 cc. of tap water by rectum, the only change that was noted was a marked increase in the urinary output of the animal and a definite decrease in the specific gravity. After approximately 500 cc. of tap water had been given, the urinary output decreased somewhat and the rabbit began to salivate. Soon thereafter the rabbit became restless and fine fibrillary twitchings of the ears and muscles of the extremities were noted. Within the next hour, with the injection of an additional 100 cc. of water, these fibrillary twitchings were replaced by clonic convulsions and marked opisthotonos (fig. 11), dilatation of the pupils, and a marked decrease in urinary output. Whether injections were stopped at this point or not, the convulsions continued, becoming more prolonged and more severe. The typical convulsions began with retraction of the head and stiffening of the extremities. Within a second or two, however, this "frozen state" was replaced by rapid, rhythmic movements of the extremities, which are best described as a "running motion." The latter phenomenon continued for from one to three minutes, when a sudden and complete relaxation of the entire body took place, only to be quickly succeeded by another convulsive seizure. As death approached, the rest periods became less frequent and of shorter duration, so that just before death the animal was in a continuous state of convulsion. Death in all instances, except the animals that were killed during a convulsion, occurred in the midst of a convulsion.

Studies of the blood before and after the experiment revealed a number of interesting changes. There was a consistent decrease in the blood chlorides, ranging from 100 to 240 points. The blood nonprotein nitrogen was inconsistent, in some instances remaining unchanged, in others increasing as high as 100 mg. per hundred cubic centimeters. The carbon dioxide combining power of the blood plasma was decreased in those rabbits on which determinations were made, but these studies were not carried out except in two animals. In accordance with the results found by Rowntree, there was a consistent blood dilution, as evidenced by a decrease in the hemoglobin and red blood cells.

In comparing the reactions of our rabbits in which an excessive amount of water was injected by rectum to those described by Rowntree in which an excessive amount of water was administered by mouth, it is evident that they are strikingly similar. It is our opinion that so-called water intoxication has been produced in both series. The pathologic changes in our animals are also of interest in that they not only bear out the same general changes mentioned in the examinations made by Wilson for Rowntree but in addition we have observed some changes that he did not mention.

PATHOLOGIC CHANGES IN EXPERIMENTAL ANIMALS

In the experimental animals that were examined at necropsy, no striking gross alterations were observed. The stomach contained a great deal more fluid than normal. In a few instances the bladders contained considerable clear urine, while in others they were empty. There was a rather uniform moderate constriction of the large bowel and the cecum seemed to contain more fluid than normal. The livers in all instances showed a shiny moist cut surface. The brains all appeared to be swollen, the normal markings were somewhat obscured, and the surface vessels were usually bloodless. It was not possible to say accurately whether the lateral ventricles were diminished in size, but when compared to normal rabbit brains we gained the impression that they were.

Fig. 11.—*A*, beginning of convulsion, showing opisthotonos and extension of extremities. *B*, height of convulsion. The extremities are extended in clonic contraction. Salivation is profuse. *C*, "frozen state." Marked opisthotonos and extension of extremities in spastic type of muscular contraction. These pictures were taken from 16 mm. moving picture films, which accounts for the blurring.

Microscopic examination of the viscera showed fairly uniform changes in the brains of all animals. When compared to normal brains in frozen section to eliminate shrinkage as nearly as possible, there seemed to be definite widening of the perineural and perivascular spaces, and the intercellular stroma was definitely vacuolated throughout (figs. 12 and 13). Degenerative changes in the nerve cells could not be demonstrated by Nissl's stains.

In all instances, the choroid plexuses were the seat of a distinct increase in vacuolization with swelling and

subependymal edema. The ependymal lining of the ventricles were likewise vacuolated, swollen and desquamating. The brain tissue showed vacuolization of the stroma, which seemed to be increased considerably above the normal. In all respects the changes in the brains of the experimental animals closely simulated those seen in the fatal human case.

Cloudy swelling was uniformly present in the livers of all animals, in some instances to a very advanced

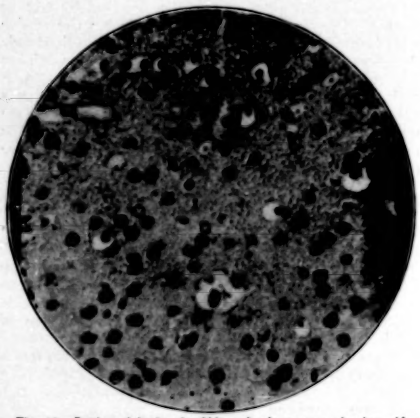

Fig. 12.—Section of brain of rabbit under low power, showing widening of the perivascular and perineural spaces.

degree, and in two instances there was a definite concomitant widening of the sinusoids, which contained a stringy faintly staining precipitate containing red cells. In many instances these red blood cells were swollen and had lost most of their hemoglobin pigment, suggesting hemolysis (fig. 14). In some cases, edematous fluid was present in the pulmonary alveoli; but this was by no means generalized.

CHEMICAL STUDIES

Analysis of body tissue for chlorine content was performed on two experimental animals as well as on two controls. Briefly, the method consisted of digestion of fresh tissue with concentrated potassium hydroxide and heat. This resulting solution was neutralized with nitric acid. Silver nitrate was added and the chlorine precipitated in the form of silver chloride, from which the determination of chlorine was calculated.

The results of this analysis were of interest and very suggestive, although there was considerable variation in the chlorine content. The chlorine content of the brain showed the greatest reduction in the water intoxicated animals, showing nearly 50 per cent decrease. The liver showed a rise in chlorine content and in all other tissues a decrease. The heart was least affected and remained almost the same in every rabbit.

This work was performed once before by Dr. Misawa.[6] He used desiccated tissue and his results were correspondingly less in variation, since the water of the intoxicated animal was not a factor in his weights. However, the results of his work and ours were relatively the same. In the water intoxicated animal he found that "there was a reduction of chloride in all the tissues of the body save the liver, as well as the blood. The reduction was greatest in skeletal muscle, where it amounted to a loss of 51 per cent, and it averaged 20 per cent in other tissues except in the liver, where a 10 per cent increase occurred." The fact that we used fresh tissue instigated the greater water weight in the water intoxicated animals as compared to the normal animals and naturally resulted in a larger weight difference than that shown in the work of Misawa.

As shown in the accompanying table, there was a decrease of approximately 50 per cent in the chlorine

Chlorine Content in Grams per Gram of Tissue

Tissue	Normal	Water Intoxication	Per Cent
Brain	0.0519	0.0255	50.8 decrease
Liver	0.0165	0.0407	147.0 increase
Kidney	0.0556	0.0335	39.8 decrease
Muscle	0.0729	0.0435	40.3 decrease
Heart	0.0539	0.0513	4.8 decrease

content of the brain and a decrease of about 40 per cent in kidney and muscle, with the heart showing only a 5 per cent decrease. In the liver an increase of approximately 147 per cent was observed.

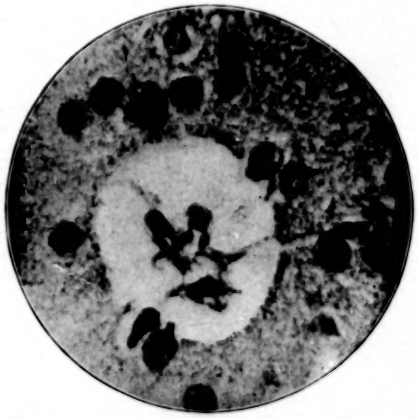

Fig. 13.—Oil immersion photomicrograph of blood vessel of cortex in a rabbit's brain showing false space peripheral to outer lining of Virchow-Robin space, traversed by glial fibrils. The brain tissue shows definite vacuolization.

COMMENT

A number of theories have been advanced to explain the pathogenesis of the so-called water intoxication. Thus, Smith and his associates[7] believe that the symptoms of water intoxication are associated with the loss of chlorides and alkalosis. Rowntree, on the other hand, as the result of both chemical and pathologic studies, believed that the excessive absorption of water

6. Misawa, H.: Ueber das Wesen der sogenannten Wasserintoxikation, Jap. J. M. Sc. Tr., VIII, Int. Med., Pediat. Psychiat. 1: 335 (Dec.) 1927.

7. Smith, F. S.; Deamer, W. C., and Phatak, N. M.: Studies in So-Called Water Intoxication, J. Clin. Investigation 13: 55 (Jan.) 1933.

produced an upset in the salt-water balance of the body with a resulting cerebral edema which was the direct cause of the clinical manifestations. In our experimental studies, the carbon dioxide combining power of the blood plasma was never increased and was usually decreased. The gross and microscopic studies of the brains both of our human case and of our experimental animals seem strongly to support the hypothesis advanced by Rowntree.

Explanation of the exact mechanism of water intoxication presents many interesting and complicated problems. It is difficult to account for the apparent susceptibility of the liver and brain for retaining fluid when tap water is given by bowel. It would appear that water intoxication was dependent on water elimination. The reason the kidneys fail to eliminate properly is unknown. In this respect, the experiments of Meier [8] are interesting. He destroyed the brains of frogs and devised two circulatory systems; one included the heart, liver and kidneys, and the other included only the heart and kidneys. He observed that a certain rate of excretion was present when a perfusing fluid was run through the heart-kidney system, but a very definite increase in the kidney output took place at once when the liver was included in the "hookup." Similarly, Mann [9] frequently noted anuria following complete extirpation of the liver. It seems, therefore, possible that some hepatic dysfunction may be of importance in the pathogenesis of water intoxication. It is interesting in this regard that biopsy of the liver of our patient at the time of operation showed a very advanced parenchymatous degeneration. Moreover, in the livers of all our experimental animals varying degrees of cloudy swelling were uniformly present. In this regard, it is likewise interesting that it has been impossible to produce an intoxication when hypotonic salt solution was administered or when 10 per cent chloride was given prior to the administration of water.

One may speculate as to whether an upset in the normal salt-water balance produces water intoxication or whether a lack of chlorides interferes in some way with the apparent relationship of the liver to renal output.

The mechanism of the acute cerebral edema is very puzzling. The most striking characteristic of the edema was its interstitial character and the fact that at necropsy there was no evidence of increased production of cerebrospinal fluid. On the contrary, the ventricles were decreased in caliber and there was scarcely any cerebrospinal fluid present, while apparently paradoxically there was histologic evidence of definite hyperactivity of the choroid plexus. Recently, Terplan [10] has recorded a case of death from insulin shock in which acute swelling of the brain was present. Grossly, the brain in his case closely resembled that observed in our case. He [11] attributes the cerebral edema to a hypotonic condition of the blood due to a marked diminution in blood sugar. Similarly, we might suggest the same mechanism for our results as that due to a decrease in blood chlorides. In addition, Ferraro,[12] by the administration of distilled water intravenously, has produced morphologic changes in the brain and choroid plexus quite similar to those observed in our studies. These facts strongly suggest that perhaps the most important factor in the production of the cerebral edema, which is the major pathologic lesion of water intoxication, is a disturbance in the normal isotonicity of the blood.

8. Meier, H.: Rôle of the Liver in Regulation of the Activity of the Kidneys, Biochem. Ztschr. **200**: 200-217, 1929.
9. Mann, F. C.: Effects of Complete and Partial Removal of the Liver, Medicine **6**: 419-511 (Dec.) 1927.
10. Terplan, Kornel: Changes in the Brain in a Case of Fatal Insulin Shock, Arch. Path. **14**: 129-132 (July) 1932.
11. Terplan, Kornel: Personal communication to the authors.
12. Ferraro, A.: Reaction of Brain Tissue to Intravenous Injections of Hypotonic Solutions, J. Nerv. & Ment. Dis. **71**: 129 (Feb.) 1930.

CONCLUSIONS

1. The possibility of producing water intoxication is emphasized as constituting one of the dangers incident to the injudicious forcing of fluids.

2. In a fatal case of apparent water intoxication, the patient, following a simple cholecystectomy, absorbed 9 liters of tap water proctoclysis within a period of thirty hours after operation and died in convulsions.

Fig. 14.—Oil immersion photomicrograph of rabbit's liver. Note marked sinusoidal dilatation and pale hemolyzing red blood cells in the sinusoids.

The most striking finding at necropsy was an acute swelling of the brain.

3. Young rabbits were given tap water proctoclysis, and the clinical and pathologic picture observed in the fatal human case was reduplicated in every instance in a series of seven animals. Chemical studies of the blood and tissues of these animals were carried out with interesting results.

Forty-Fourth Street and Mill Creek Parkway.

New Fool-Proof Explosive.—A revolutionary new blasting material for use in quarries and in other blasting operations such as stripping, was announced at the Eighteenth Annual Technical Section Convention of the Explosives Department of the du Pont Company, which opened, January 22, at Wilmington, Del. This new product, it was stated, cannot be detonated by the strongest commercial blasting cap, by impact, by flame, nor by shooting a rifle bullet into it. In actual use it is exploded by means of a large diameter cartridge of dynamite. It is non-headache producing and is rendered absolutely water resistant by being sealed up tightly in a tin can. It is said to represent the ultimate in safety in so far as a blasting agent is concerned. This new development has been covered by two patents, one for the product itself, which will be known as "Nitramon," and the other covering its method of use. It is nonfreezing. This new product will be marketed only in large diameters — 4-, 4.51, 5-, and 7-inch.—*Indust. & Engin. Chem.* **27**:93 (March 10) 1935.

ROENTGEN RADIATION NECROSIS OF LARYNX AND OTHER STRUCTURES OF THE NECK

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According to Hahn,[1] when irradiation in 1910-1912 replaced surgery in the treatment of tuberculosis of the neck, many patients suffered roentgen injuries of the throat. Even after the radiation had been reduced to three fourths of the toxic skin dose, patients so treated, after several weeks, became hoarse. Because these patients had no skin reaction, their hoarseness was not associated with the radiation therapy. As the number of patients with hoarseness increased and examinations of the larynx demonstrated an obstinate edema which lasted several weeks, radiation was recognized as the etiologic agent. The only reference to irradiation injury of the throat at that time, according to Hahn, was by Mühlmann, who had often noted a stubborn hoarseness in irradiated patients and, in two, a chronic laryngitis. Other reports of severe damage to the larynx and tissues of the neck by radiation were published in 1921 by Wetzel,[2] Holfelder,[3] Schmidt,[4] and Marschik,[5] and more in 1922 and 1923 by von Hofmeister,[6] Feuchtinger,[7] König,[8] Mühlmann and Meyer,[9] Van Rossem[10] and Jüngling.[11] The injurious effects of radiation on the larynx were so well known then that Jüngling described them as of three types: (1) an immediate reaction occurring within from one to three days; (2) a true roentgen reaction appearing from ten to twenty days after irradiation, and (3) a late reaction appearing any time after from four weeks to a year. In the first, he stated, there is a moderate swelling of the neck, especially of the subcutaneous fat and of the lymph nodes. The mucosa of the mouth has no appreciable edema, but sometimes a marked salivation is annoying. The true roentgen reaction is characterized by dryness of the throat, by hoarseness, and sometimes by edema and fibrinous exudates on the mucosa. The manifestations of the serious or late stage are edema, marked atrophy and scar tissue replacement of the structures in the neck, perichondritis, and necrosis of the larynx. All the late stages may occur, according to Jüngling, without any indications of an immediate reaction. Since the report by Jüngling, others on radiation injury to the larynx have been published by Schmitz,[12] Halberstaedter,[13] Strandberg,[14] Güssow,[15] von der Hütten,[16] Tonndorf,[17] Thost,[18] Iglauer[19] and Posey.[20] Only the last two of these appeared in American Medical publications.

The amount of radiation therapy received by individual patients has varied. In some the quantity admittedly was excessive; in others it was considered small, and in the remainder it was average, not known, or only approximated. Iglauer and others reporting these injuries have emphasized the danger of producing serious damage to the larynx by therapeutic irradiation of the neck and have advised careful protection of this structure against excessive or cumulative dosage.

Among the thirty-two instances of irradiation injury to the larynx recorded in the publications listed, by far the greatest number of deaths has resulted from the so-called late manifestations. Death, however, has been reported in both the other stages. The patient whose clinical record was reviewed by Schmitz died from the asphyxia of an immediate reaction, and one of the two reported on by Posey was saved from an acute death by tracheotomy. An analysis of the diseases mentioned for which radiation therapy of the neck was prescribed discloses a wide variety of actual or alleged disorders. Carcinoma of the larynx (nine) is the most frequent, then lymphoma of the neck (five), Trichophyton infections of the skin (four), papilloma of the larynx (four), tuberculosis of the cervical lymph nodes (three), Hodgkin's disease (one), exophthalmic goiter (one), keloid of the neck (one), actinomycosis (one), malignant tumor of the thyroid (one), a swelling of the base of the tongue and enlarged lymph nodes, considered malignant without tissue examination, and, finally an acute laryngitis.

Radiation treatment of carcinoma, at present, is in a phase in which high voltage-low resistance doses are given. A warning may be in order at this time of the dangers of damage to the larynx by irradiation for carcinoma or other diseases and of the seriousness such injuries are to the patient.

A recent experience in which death followed severe late radiation necrosis of the larynx prompts this report.

REPORT OF CASE

An unmarried white man, aged 26, consulted a physician in April 1933 because of an enlarged right upper cervical lymph node. This node was about 3.5 cm. long and 2.5 cm. wide. Without histologic examination of tissues and believing that the enlargement might be due to sarcoma, the physician gave four courses of radiation therapy (skin dosage) during the following year, spaced at intervals of two months. The node at first decreased in size but never disappeared entirely. March 27, 1934, an examination of the patient, who then complained of difficulty in swallowing, disclosed an inflammation of the right pillar and tonsil, and marked swelling of the tongue. He came into the care of one of us (P. A. N.) at Mercy Hospital, where another examination, March 30, demonstrated a hard, movable, encapsulated mass 3 cm. in diameter in the right submaxillary region, and another, freely movable, 1 cm. in diameter in the left submaxillary region. There was a marked edema of the tongue and floor of the mouth; the tonsils had been removed. A nodule 2 cm. in diameter was in the right lower tonsillar pillar and from this, tissues were taken for histologic examination. There was no ulceration of the mouth. The general physical and indirect laryngoscopic examinations disclosed nothing unusual. The clinical diagnosis was bilateral metastatic carcinoma of the cervical lymph nodes, secondary to a primary growth in the right tonsillar pillar. The tissues removed from this pillar and examined microscopically, however, contained normal tonsil tissues. The large right submaxillary lymph node was excised, April 6, and histologically it had only inflammatory changes and some edema. The submaxillary salivary gland tissues included with the lymph node

Aided by the Winfield Peck Memorial Fund.
From the Mercy Hospital Institute of Radiation Therapy and the Henry Baird Favill Laboratory of St. Luke's Hospital.

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2. Wetzel, E.: Strahlentherapie **12**: 585, 1921.
3. Holfelder, H.: Med. Klin. **17**: 681 (June 5) 1921.
4. Schmidt, H.: Virchows Arch. f. path. Anat. **231**: 557, 1921.
5. Marschik, H.: Monatschr. f. Ohrenh. **55**: 1445, 1921.
6. von Hofmeister, F.: München. med. Wchnschr. **69**: 1687 (Dec. 8) 1922.
7. Feuchtinger, R.: Monatschr. f. Ohrenh. **56**: 865, 1922.
8. König, Erwin: München. med. Wchnschr. **70**: 558 (May 4) 1923.
9. Mühlmann, E., and Meyer, O.: Strahlentherapie **15**: 52, 1923.
10. Van Rossem, A.: J. Laryng. & Otol. **38**: 477 (Sept.) 1923.
11. Jüngling, O.: Strahlentherapie **15**: 18, 1923.
12. Schmitz, H.: Strahlentherapie **16**: 144, 1923-1924.
13. Halberstaedter, L.: Fortschr. a. d. Geb. d. Röntgenstrahlen **31**: 425, 1923-1924.
14. Strandberg, O.: J. Laryng. & Otol. **39**: 437 (Aug.) 1924.
15. Güssow, W.: Arch. f. Ohren-, Nasen- u. Kehlkopfh. **116**: 89, 1926.
16. von der Hütten, F.: Arch. f. Ohren-, Nasen- u. Kehlkopfh. **115**: 271, 1926.
17. Tonndorf, W.: Ztschr. f. Hals-, Nasen- u. Ohrenh. **12**: 22, 1926.
18. Thost, A.: Handb. d. Hals- Nasen- Ohrenh., Berlin, Julius Springer **2**: 322, 1926.
19. Iglauer, S.: Ann. Otol., Rhin. & Laryng. **36**: 124 (March) 1927.
20. Posey, E. L.: South. M. J. **21**: 155 (Feb.) 1928.

had also a marked fibrous tissue replacement but no tumor tissues. From March 30 to April 24, twenty radiation treatments were given on alternate sides of the neck with 800 kilovolts of roentgen rays. The roentgens at the surface of the field for each of the first twelve treatments were 308, for each of the next seven treatments 450, and for the last one 231. The immediate reactions from the irradiation were severe, as occurs in all patients subjected to this method of treatment. The radiation fields extended from the clavicle upward. The adja-

Fig. 1.—Marked necrosis of the lining of the larynx. The necrotic and displaced cricoid cartilage is just above the tracheotomy opening.

cent body surfaces were protected with heavy lead rubber and 0.5 cm. of lead. The patient, however, seemed to remain in good condition except for dryness of the throat and some edema of the arytenoids. May 16, after the radiation therapy had been completed, a severe reaction developed on the inside and outside of the neck.

There is here a gap in the clinical history of the patient until September 10, about which time he was admitted to the Edward Sanatorium. At that time he was silent because of a severe laryngitis thought to be tuberculous. The observations made there are not known to us. He entered St. Luke's Hospital, October 2, in the service of Dr. E. P. Norcross, unable to speak above a whisper. He had had difficulty in swallowing and a sore throat for three months, and cough and pain in the right ear for one week. He could drink only with difficulty and could scarcely swallow even soft foods. Dr. Norcross during his examination, October 3, noted that the skin of the neck seemed to have been burned recently by some form of irradiation and that the base of the tongue was indurated, especially the right side. The anterior surface of the epiglottis, both valleculae, the hypopharynx and the arytenoids were edematous. Both vocal cords were thin and their excursion was limited. Thick mucus filled both pyriform sinuses. October 6 the vocal cords were closely approximated and, because of the marked dyspnea, the larynx was intubated. The dyspnea and other symptoms became worse, so that on October 10 a tracheotomy was performed. In spite of this and supportive measures, the patient's dyspnea continued, the temperature ranged daily between 101 and 103 F., and he died, October 29, at 12:30 p. m.

The essentials of the anatomic diagnosis of the postmortem record are: marked gangrenous ulceration (radiation necrosis) of the pharynx, larynx and upper parts of the trachea and esophagus; sequestration of the cricoid cartilage; marked brawny induration and atrophy of the tissues of the neck; recent surgical tracheotomy wound of the neck; necrosis and acute cellulitis of the tissues about the tracheotomy wound; acute cellulitis of the tissues of the mediastinum; acute bilateral bronchopneumonia of the lungs; acute hyperplasia of the tracheobronchial lymph nodes; cloudy swelling of the myocardium, liver and kidneys, and bilateral fibrous pleuritis.

The markedly emaciated body was 158 cm. long and weighed 87 pounds (39.5 Kg.). The mucous membranes of the front of the mouth were pale, and the cervical lymph nodes were not enlarged. An oval tracheotomy wound of the neck was 4 cm. long, 2.5 cm. wide, and extended cone shaped 3 cm. into the lumen of the trachea. The walls were necrotic and brown-black. Dense fibrous adhesions bound each lung to the chest. The pleural spaces contained no fluids. There was a marked brawny induration of the neck in front of the spine. The skeletal muscles were pale red and matted into indurated tissues about the trachea. The tissues in and about the tracheotomy wound including the cartilage rings were necrotic and had a foul odor. The lining of the trachea was ulcerated and necrotic to the level of the clavicle, and all the structures of the neck including the carotid sheaths were bound together. These tissues of the neck were removed in one mass (fig. 1) for examination. A perforation of the posterior wall of the trachea opposite the tracheotomy wound extended into the soft tissues about both carotid arteries but did not erode these vessels. The cellulitis had spread behind to the anterior longitudinal ligament of the spine and here was an abscess 3 cm. in diameter, filled with purulent material. The vertebrae were not eroded. The brawny induration and necrosis of the tissues extended upward on both sides of the neck to the

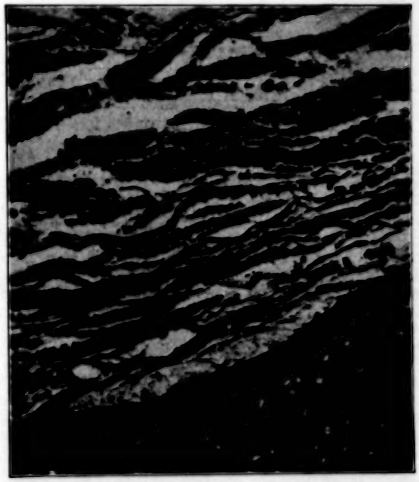

Fig. 2.—Necrotic tissues lining the larynx, and in the deeper portions cartilage, also necrotic; × 76.

mandible. The entire wall of the larynx was necrotic and several pieces of cartilage, including the entire cricoid cartilage, were held loosely in the necrotic soft tissues. The destruction of the internal surfaces of the larynx was so marked that the vocal cords and other structures were no longer present. The upper part of the esophagus also was markedly ulcerated, hyperemic and edematous down to the level of the clavicle, but mainly above and behind the larynx where the wall had several perforations. The epiglottis was slightly eroded, edematous and hyperemic. In the pharynx the necrosis extended to the

level of the faucial tissues. A small amount of lymphoid tissue was in each tonsillar fossa. The thyroid gland was embedded in indurated fibrous tissues. On surfaces made by cutting it was gray-brown, dry tissue. The cervical lymph nodes on both sides were about 1.5 cm. in diameter. They were moderately firm and on surfaces made by cutting had the usual gray lymphoid tissue.

Histologic examinations were made of tissues cut from the margin of a transverse bisection of the larynx so as to include portions from the entire circumference. The lining tissues in these places were markedly edematous, necrotic, fibrillar mucosa without exudates or nuclear structures, simply a stroma framework of devitalized tissues (fig. 2). Even the thyroid cartilage tissues were necrotic. The tissues bordering the necrotic portions had a markedly edematous hyaline stroma with a few shrunken nuclei. The structure of these tissues resembled that of tissues elsewhere in the body injured by radiation therapy.[21]

COMMENT

The radiation therapy given this patient, while admittedly large and obviously excessive for his tissues, was according to the procedures of the present trend in roentgen therapy; namely, the use of large quantities of high voltage-low resistance rays. The unfortunate result, however, should be attributed to the combination of four series of low voltage roentgen rays and one series of 800 kilovolts of roentgen rays. The dosage of the latter given has not been followed by such destruction reactions. The experience here related is again a warning that roentgenologists should safeguard their patients against radiation injuries, especially when sensitive tissues such as those of the neck are treated.

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UNILATERAL SUBLUXATIONS OF THE CERVICAL VERTEBRAE WITHOUT ASSOCIATED FRACTURE

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Since Jan. 1, 1929, there have been sixty-six cases of unilateral subluxation of the cervical vertebrae without associated fracture seen in the fracture service of the Presbyterian Hospital. Of these, five were seen in the first three years and thirty-nine in the past eighteen months. This sudden and spectacular increase is due not to any change in the neck structure of New York's population but to the education of the members of the staff in the recognition of the condition. We feel, therefore, that it is of value to present this group of cases not in order to describe a new condition or method of treatment but to refresh the memory of the profession at large as to the characteristic picture these patients present and to set forth our experience in their treatment.

Of the sixty-six patients, thirty-six were male and thirty female. Fifty-two were between the ages of 10 and 29 years, the youngest of the series being 6 and the oldest 60.

Fifty-two patients came for treatment within twenty-four hours of the onset of symptoms, ten more within a week. One woman came into the clinic a year and a half after her original trauma, still suffering from pain, disability and deformity.

The initiating trauma is apt to be very slight but to occur when the muscles are "off guard," as for example when the patient has just awakened. A sudden kink on stretching in bed, a turn in answer to a call, a jerk of the head to catch a forward pass, a twist in taking off a dress over the head have all been cited as the cause for the symptoms from which the patient sought relief. Two of the series received their injuries in motor accidents and two in diving.

Following such a sudden twist as one of those just described the patient feels sudden pain and finds that he cannot straighten his head. The pain usually subsides quickly, only to recur when motions of the neck are forced, but it and the disability are usually sufficiently definite to force the patient to seek medical attention fairly soon. He often volunteers the fact that it does not feel just like a stiff neck.

The picture the patient presents is characteristic. The head is tipped and tilted to one side and is moved with great care. Voluntary flexion and extension of the neck are usually possible and rotation and further tilting on the side toward which the head is already inclined can be done easily and painlessly. But the head cannot be inclined toward the opposite side. Passive motions bring out the same manifestations. In other words, if the head is tilted to the right the right ear can be brought down toward the right shoulder, but on attempting to bring the left ear to the left shoulder a definite resistance is encountered and the patient usually complains of pain. Rotation to the affected side may or may not be impaired, but lateral flexion is invariably resisted. Muscle spasm is usually present and is found on the "long" or affected side in contrast to torticollis, in which the spasm is on the "short" side toward which the head is bent. There is usually tenderness over the affected vertebra on the "long" side. Three patients complained of pain radiating down the shoulder and arm. No other signs or symptoms of cord or nerve root involvement were noted.

The differential diagnosis has been of considerable interest to us, as we have encountered two schools of thought among our colleagues: one of complete skepticism as to the existence or at least importance of a cervical subluxation, and the other of such complete acceptance that they believe that any one with a pain in the neck must have, *ipso facto*, a partial dislocation. It has been necessary to answer the objections of the former and to sift out the wheat from the chaff in the cases referred to us by the latter.

Various lesions may be mistaken for a true subluxation. Of these, the most common is acute myositis of the trapezius. This can be distinguished by the absence of the block to lateral flexion, although motions may be painful, and by the tenderness in the muscle belly, not localized over the vertebra as in subluxation. Cervical adenitis may cause a tilt of the head and limitation of motion, but careful palpation will reveal the tender glands, and motions will be possible though painful and limited in extent. Arthritis of the cervical spine will cause a generalized limitation of motion, not especially lateral flexion to one side. Torticollis will have the muscle spasm on the "short" side toward which the head is bent, and if there is tenderness it is over the spastic muscle on the "short" side.

The conclusive proof of the diagnosis of subluxation, however, lies in the stereo lateral roentgenograms, which will show the sliding forward of one articular facet on the one beneath it.

21. Elliott, A. R., and Jenkinson, E. L.: Radiology **23**:149 (Aug.) 1934.

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Our routine films include stereoscopic roentgenograms in both lateral and anteroposterior projections; also an anteroposterior projection through the open mouth to delineate better the first two segments, particularly the odontoid process. We would emphasize that stereoscopic films are essential in order that the finer variations from the normal may be recognized. Even in the most marked cases the lateral projections are difficult to interpret unless the third dimension is appreciated, which "separates" the various structures that are otherwise superimposed.

In the usual case the facet surface of one segment is seen displaced upward and forward on that of the corresponding one below. There is usually an associated slight backward displacement of the corresponding facet on the other side, owing to the rotary nature of the displacement. This is recognized best in the lateral view (figs. 1 and 2), although the anteroposterior view will give one the impression of a longer superimposed facet shadow on the side of the displacement. Moreover, one will see the tilt of the spine and chin to the opposite side.

The objection has been raised that if the lateral projections are slightly oblique one will get a false impression of subluxation, but if one is careful to use the anterior margins of the facet surfaces as an index of the amount of displacement this source of error can be disregarded. We have satisfied ourselves that the roentgen picture produced by the clinical entity we describe cannot be reproduced by the attempt of a normal individual to assume an attitude corresponding to that seen in a clear cut case of subluxation.

Among the sixty-six cases we have not seen any that has shown a complete forward displacement with the facet slipped forward into the intervertebral notch. In only one case was the roentgen study negative. This

Fig. 1.—A representative film showing subluxation of the articular facet of the third segment on that of the fourth.

can be expected in an occasional case, since very slight displacements may take place which may have been reduced spontaneously or with only slight manipulation, as is necessary when placing the patient for roentgenography. The symptoms of pain and spasm persist for a time in spite of the reduction.

In thirty-seven cases the subluxations occurred between the second and third cervical vertebrae, none between the first and second, and one at the sixth and seventh. The others were fairly evenly divided between the remaining levels.

We have modified our treatment somewhat since our first article was written. Of the last thirty-nine cases, seventeen were treated by simple head traction of from 5 to 15 pounds, depending on the size of the patient and lasting from twenty-four to seventy-two hours. Two subluxations were not reduced by this method and required manipulation under general anesthesia. Seventeen patients were treated in a manner described by Dr. Stookey [1] for more severe fracture-dislocations

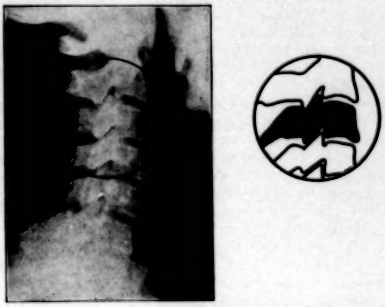

Fig. 2.—Same case as in figure 1: lateral film (after reduction).

on an air mattress in which hyperextension of the neck is obtained by allowing the head to lie in a trough made by compressing the mattress with a wide strip of adhesive plaster. Three of the results were unsuccessful and the dislocations were reduced by head traction. Two cases were successfully manipulated as primary procedures and three reduced spontaneously either on the x-ray table or during the process of examination.

No form of immobilization was used on the three cases that reduced spontaneously. In the group in which reduction occurred very quickly after admission to the hospital and which seemed to be of a mild type, a Schanz collar of cotton and muslin was applied and maintained for from ten to fourteen days. Patients who required more strenuous efforts for reduction, who had had recurrences or who had marked symptoms were immobilized in plaster collars for four weeks.

Five of the sixty-six cases have recurred: one at seven days in an active small boy who twisted inside a loosely fitting collar; one at twelve days in a girl who removed her plaster collar against advice to go to a dance and subluxated it at the dance; one at six weeks in a patient who had cut down his plaster collar a week after leaving the hospital; one at seven weeks in a woman who had worn a plaster collar for four weeks, and one at five and one-half months in a man who had worn a plaster collar for four weeks.

CONCLUSION

We would stress again the composite picture presented by the sixty-six cases here reviewed: a relatively young adult who seeks relief for stiffness and pain in the neck within twenty-four hours after a mild twist or jerk of the head and who holds his head tilted to one side and cannot bend it to the opposite side. Adequate roentgenograms are necessary for conclusive diagnosis. Treatment is relatively simple after the diagnosis has been established.

1. Stookey, B. P.: Am. J. Surg. 26: 513 (Dec.) 1934.

BACK STRAIN AND SCIATICA

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It is my purpose in this paper to present a new theory relating to the cause of lame backs. The members of the profession at large know only too well that there are many symptoms of low back disabilities for which there have been no explanations. The terms sacro-iliac strain and dislocation or lumbosacral strain are in common use. Up to the present, these explanations have satisfied most physicians, depending on which side of the fence they happen to be. When roentgenograms of the sacro-iliac and lumbosacral joints are presented which show no evidence in this region of any pathologic condition, either congenital or acquired, it would seem difficult to make a positive diagnosis of either sacro-iliac or lumbosacral strain. One is frequently troubled by the fact that there is a negative roentgenogram of a patient whose clinical signs and symptoms are those of extreme irritation in the sacro-iliac or lumbosacral joints. As a result of observation and examination of a number of cases of this type, it has been discovered that the iliotibial band is an exceedingly important factor in the occurrence of lame backs, with or without an associated sciatica.

ANATOMY

The fascia lata is a sheath that surrounds the thigh muscles, with trabeculations that pass between the muscles and form intramuscular septums. This fascia is controlled by a muscle known as the tensor fasciae latae, which is attached to the crest of the ilium at its anterior and lateral aspects. It extends down below the trochanter, ending in the iliotibial band. The whole iliotibial band extends from the crest of the ilium down the lateral aspect of the leg and is inserted into the outer tuberosity of the tibia and forms, in its lower three quarters, the tendon of the tensor. The tendon of the gluteus maximus muscle is inserted into the postero-lateral aspect of the femur below the base of the greater trochanter, and in this region there is a widespread aponeurotic connection between the gluteus maximus tendon and the posterior part of the iliotibial band (fig. 1).

Fig. 1.—Anatomy of the iliotibial band (Sobotta and McMurrich Anatomy).

PATHOLOGY

It has been observed in many patients with low back disturbances that the iliotibial band is extremely tight and prominent when the patient is lying on his back, with the knees together, or when he is in the erect position. The band is very rigid, almost bonelike in consistency, when under tension, usually about one-half inch wide, and is raised above the level of the fascia lata, with which it connects anteriorly and posteriorly. It is easily located in a line, usually just in front of the trochanter. It may be situated immediately over the trochanter or it may be a little posterior. When the band is situated immediately over the trochanter, many patients complain of a snapping sensation in the hip. This snapping sensation is due to the riding of the band back and forth over the trochanter. Many writers have been cognizant for a long time that this is the cause of snapping hips. When the contracture is present on one side, a lateral deviation of the spine is produced on that side and the pelvis is found to be tilted. The mechanics of the contracture and the leverage produced by the contracture are so great that it is possible that the unilateral contracture may account for irritation in the sacro-iliac joint. When both bands are tight and in front of the trochanter, the lumbar spine is held in lordosis, in both the standing and recumbent positions. If contracture is posterior to the trochanter, the spine is held in a lumbar kyphosis. In two of the cases to be reported in which operation was done, a chronic, inflammatory condition was found in the iliotibial band under microscopic examination. In one case there was a report of perivascular cellular infiltration in the intermuscular connective tissue and a loss of cross striations in the muscles.

Fig. 2.—Method of showing abduction contracture.

SYMPTOMS

Patients who have this contracture complain of the low back pain as a sensation of strain in the low part of the back in the region of the lumbar and sacral bones or in the sacro-iliac articulations. Severe sciatica is associated quite often with the condition and there also may be pain along the lateral femoral cutaneous nerve and occasionally along the distribution of the femoral nerve. Those who have the double contracture may show sciatic irritation on one side or both sides, or alternating attacks.

EXAMINATION

1. Straight leg raising is usually limited whether sciatica is present or not.

2. When these patients are asked to sit down and bend the body forward, with the legs extended on the examining table, it is very rare for the lumbar spine and pelvis to flex even to a right angle (fig. 3). Many of these patients are unable to stoop over and touch the floor with their hands (fig. 4).

3. In most cases, Ely's sign is present. (This sign was first described as pathognomonic of sacro-iliac irritation or disease.) As a matter of fact, Ely's sign merely indicates a contracture of the fascia lata. This sign is obtained while the patient is lying prone on

the examining table. The examiner flexes the leg on the thigh and as the flexion takes place the pelvis rises from the table.

4. The most important diagnostic sign of the contracture is obtained as follows: The patient is placed directly on his side. The examiner places one hand on the pelvis to steady it and grasps the patient's ankle lightly with the other hand, holding the knee flexed at a right angle. The thigh is abducted and extended in the coronal plane of the body (fig. 2). If the contracture described is present, the leg will remain abducted, the degree of abduction depending on the amount of contracture present. This sign is present both in the conscious and in the anesthetized patient. If there is no contracture present, the thigh will adduct beyond the median line.

TREATMENT

The treatment of this condition resolves itself into one factor, and that is the relief of the contracture. In those cases in which there is no sciatica or other pain, the low back pain may be relieved by stretching exercises carried out in the following manner:

The patient stands with the affected side about 2½ feet away from a table or some other convenient object, which he grasps with one hand; then, with his shoulder and pelvis in the same plane, he bends the affected hip toward the table as far as he can, his whole figure forming an arc. This position is maintained for a few seconds and then repeated five times the first day and is increased once each day until the exercise is done twenty-five times, twice a day.

In those cases in which there is a severe sciatica, operation is indicated and the method of procedure is as follows:

1. An incision is made from just below the crest of the ilium down to the tip of the trochanter, directly over the contracted iliotibial band.

Fig. 3.—Illustrating shortening of the posterior muscles, sitting.

2. The fascia lata is exposed forward as far as the anterior superior spine and backward to the edge of the gluteus maximus muscle. The area of the greatest contracture of the fascia can be seen readily and felt easily.

3. The fascia is now divided transversely from just below the anterior superior spine to the anterior border of the gluteus maximus muscle (fig. 5). There is immediate separation of the cut edges for a distance of from ¼ to 1½ inches, depending on the amount of contracture present. If the operator now attempts to carry out the test described, it will be shown that the thigh will completely adduct.

Several patients with low back symptoms and severe sciatica have been operated on, some of them with almost dramatic results. These patients have suffered from severe sciatica, lasting, in many instances, for several months. In cases 1 and 3 the relief from sciatic pain was almost immediate, there being a marked diminution of symptoms within twenty-four hours following operation. In several of the other cases the sciatic pain persisted for about six weeks and in one case lasted for eight weeks after operation, the sciatica subsiding very slowly. Thirteen patients have been operated on, with relief in all instances except one.

Fig. 4.—Illustrating shortening of the posterior muscles, standing. Contracture of the iliotibial band plays a large part in this condition.

Before the surgeon does this operation, he should be very sure that there is no pathologic condition in the spinal canal, especially in the region of the cauda equina. The explanation of the amelioration of the sciatic symptoms and the low back disability might possibly be made on two grounds. First, that the shortness of the iliotibial band and the contracture of the fascia lata causes a squeezing effect on the sciatic nerve where it passes over the acetabulum. Second, an explanation which seems to be more reasonable, that the mechanical pull of the contracted bands or band is producing a mechanical strain of the sacro-iliac or lumbosacral articulation.

REPORT OF CASES

CASE 1.—A. F., a man, aged 39, seen Feb. 5, 1934, complained that while leaning over to dry his left foot following a bath and resting the left foot on the tub, bearing his weight on the right foot, he felt a sudden tearing pain in the right lumbar regions. There was no radiation of the pain. There was slight local tenderness to the right of the lumbar spine.

The patient had been leading an active life, playing squash regularly until 1932, when he had an attack of angioneurotic edema of the meninges and had no physical exercise until July 1933. In October 1933, following a game of squash, he awoke the next morning with severe pain in the right lumbar region which persisted about four weeks. There was no radiation of the pain and only slight local tenderness. Four weeks later he had another attack after playing squash for a few minutes. In the next four weeks the pain grew steadily more severe. It was aggravated by walking, standing and sitting, and from time to time there was a dull radiation of pain toward the right ischial tuberosity. Coughing and sneezing increased the pain.

Examination at this time showed the ankle jerks equal and active and no tenderness over trunk or nerve. Passive flexion of the hip with the knee extended was painful, and the pain was referred to the thigh, buttock and right iliolumbar angle. A belt gave no relief.

In January 1934 the pain was increased and was constantly present as a severe ache in the gluteal region. The patient had severe cramplike pains radiating to the posterolateral aspect of the thigh and outer aspect of the calf and foot. Pain was aggravated by walking and standing. At this time he was taking from 4 to 5 grains (0.2 to 0.3 Gm.) of codeine and

from 40 to 50 grains (2.6 to 3.2 Gm.) of acetylsalicylic acid daily. February 5, a tailored corset was applied, which gave some relief, so that the patient was able to walk with less discomfort; but the sciatic pain was almost unbearable if he attempted to stand a few minutes without the support.

February 17 he had an attack of influenza and was confined to bed, with almost immediate exacerbation of the pain. When he entered the hospital there was some decrease in the right ankle and knee jerks and slight diminution in all forms of superficial sensation along the distribution of the sciatic nerve. The general physical examination was negative. No foci of infection could be found. Roentgen evidence of the disturbance at the fourth lumbar vertebra was doubtful. There was complete sacralization of the fifth lumbar vertebra on the left and it was incomplete on the right. Diathermy and heat gave no relief. Epidural injections, consisting of 0.5 per cent procaine hydrochloride and physiologic solution of sodium chloride to a total volume of 280 cc., were given with moderate relief. Massage given in March was painful. The patient remained in bed most of the time from February 17 to April 30.

Examination showed limitation of motion of the lumbar spine in all directions, attended by marked spasm of the lumbar muscles. Very few degrees of forward flexion were allowed. Straight leg raising was markedly limited on the right and not on the left. The iliotibial band on the left side was moderately contracted. On the right side it was contracted so that there was about 10 or 15 degrees of permanent abduction.

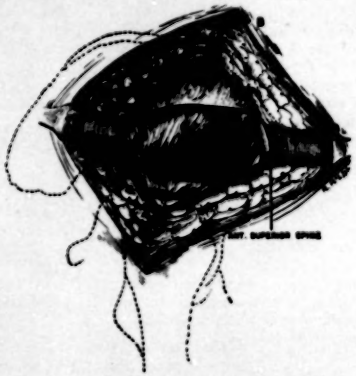

Fig. 3.—Separation of the iliotibial band after section.

May 2, under a local anesthetic, the iliotibial band was divided as described. The patient was returned to bed, ate his breakfast and suffered some local discomfort as a result of the operation. At 5 p. m. he walked unassisted to the bathroom. When he stood without support, pain radiated to the old area, especially outside of the calf, but the intensity and quantity were diminished. May 3 he stood up and gave himself a sponge bath and shaved. He had been unable to stand this long without support for three months. There was a moderate amount of pain in the outer calf. A pathologic specimen removed at the time of operation showed degeneration of the fibrous connective tissue.

The patient left the hospital, May 5, and flew to New York. No supporting belt has been worn since May 8. The only discomfort that he has had is a transitory sensation in the region of the incision. May 24 he walked 4 miles, two of them without resting, and the only effect of this was moderate fatigue. From the patient's point of view the most striking factor has been the dramatically striking change in the character of the pain. It was almost unbearable in the beginning and now it has entirely disappeared. The patient was an excellent one from the surgeon's standpoint, as he is himself a neurologist.

Case 2.—A. D., a woman, aged 31, married, the wife of a physician, seen June 13, 1934, had for a number of years had pain in the lower part of the back, which was worse after prolonged standing, and occasionally it was troublesome in clearing up. Previous to June 13, 1934, she had been admitted to the Lakeside Hospital on two different occasions with severe sciatica. On one occasion the left sciatic nerve was stretched and on another saline injection was performed. The present attack began about six months before and was limited to the course of the left sciatic nerve. The patient was forced to go to bed for four months before admission on account of the severity of the pain. It was severe when she was sitting or bending the body. Roentgenograms had been entirely negative. Baking and massage gave no relief.

The patient was well developed and nourished and did not appear to be acutely or chronically ill. She was uncomfortable on moving and complained of constant pain in the posterior part of the left leg. There was tenderness along the course of the left sciatic nerve and in the region of the ischial tuberosity well down below the knee. Sensation everywhere was normal. The achilles jerk was absent.

June 13 I performed an operation on the left iliotibial band, dividing the band through the usual incision. Following the operation there was some relief from the sciatic pain. There was some discomfort in the wound and some pain low down at the anterior surface of the thigh. She was discharged from the hospital on the fourth day with marked improvement in the sciatica. There was complete disappearance of the sciatica in six weeks and the patient resumed a normal life on the eighth week with no pain.

Case 3.—J. A., a Negro man, aged 26, single, seen June 13, 1934, had first been seen by Dr. E. B. Castle of Cleveland, April 25, 1934, with a history of sciatica of six weeks' duration. He had slipped and fallen down stairs, twisting his body when attempting to save himself.

Examination on his first visit showed considerable spasm of both erector spinae groups of muscles. Most of his complaints referred to the left sacro-iliac joint. There were some left sciatic symptoms, with pain radiating down the posterior aspect of the thigh. The left side of the pelvis tilted and there was a compensatory scoliosis. Straight leg raising on both sides caused pain in the region of the left sacro-iliac joint. The usual treatment was carried out. The back was strapped, he was given large doses of sodium salicylate, and heat was applied. There was no improvement.

The patient was seen in consultation with Drs. Maxwell Harbin and E. B. Castle. June 14, under gas-oxygen anesthesia, a left iliotibial fasciotomy was carried out through a transverse incision midway between the greater trochanter and the iliac crest. The second day after operation the patient sat on the edge of the bed and had no pain in the back, and the spine was straight. At the time of operation the patient had a marked scoliosis and during the six weeks previous treatment it had grown steadily worse. The patient was discharged on the seventh day after operation. After he got out of bed a very small amount of the scoliosis returned, but this disappeared promptly within a week. The patient returned to work, July 9, approximately three weeks after operation, fully recovered.

Case 4.—F. K., a white woman, aged 33, married, seen July 16, 1934, complained of a lame back of twenty-one years' duration. She had been worse since the birth of a boy ten years before. She had been in constant pain and more or less uncomfortable with attacks of sciatica down the right leg. One year before she had a bad attack and was confined to bed from November to July. For six weeks she had been very uncomfortable. During that time she was up once but had severe pain in the left leg going down to the heel and the side of the foot. Sometimes she had pain over the outer side of the thigh, which kept her awake. She was uncomfortable in any position except the semiprone position with the left thigh flexed.

Physical examination, July 16, showed that when she was standing all motions of the spine were limited, with moderate muscle spasm. Straight leg raising was markedly limited on

both sides but more on the left. There was marked shortening of the iliotibial bands, more marked on the left. Ankle jerks were diminished on the left. Other reflexes were normal. There was weakness in the dorsal flexion of the left foot.

On July 18, under general anesthesia, both iliotibial bands were divided. July 26, straight leg raising was possible to 50 degrees on the left side and 60 degrees on the right. The power of dorsal flexion had increased. She was taking no sedatives after having taken them for nearly a year. Pain was decreasing. By August 11 the conditions had improved markedly. She walked better, with less sciatica. There was no weakness in dorsal flexion of the foot. September 16 she still had a moderate amount of sciatica in the posterior aspect of the thigh, but none down the leg. The patient could put on shoes without difficulty, which she could not do before operation. Straight leg raising was 80 degrees on the left side and to a right angle on the right. There was still slight limitation of the back motions, with a list to the left. The patient felt better than she had for years.

A pathologic report of the specimen removed at the time of operation was acute and chronic inflammation. Muscle fibers showed loss of striations.

CASE 5.—A. T., a white woman, aged 37, married, seen July 17, 1933, had had a lame back since she was 20, radiating first down one leg and then the other. Pain in the back was very acute in May 1931. Sciatica on the left side was very severe and she was confined to bed part of the time. The condition was much worse throughout 1931, and no ankle jerks were present at that time. Since then she had had difficulty with moderate and mild attacks of sciatica. At the present examination she complained of sciatic pain down the right leg with tingling and numbness. The patient has had snapping hips all her life.

Examination showed poor posture, posterior kyphosis at the lumbosacral region, and rounded shoulders. The lateral motions of the spine were free. The patient, on sitting with the legs extended and bending forward, felt pain down the right sciatic nerve. There was no muscle spasm. Straight leg raising was considerably limited on both sides. Reflexes were normal except for an absent ankle jerk on the left. There was contracture of both iliotibial bands.

July 8, 1934, another examination was made; the patient's sciatica on the right side had cleared up a few months before. She now had pain on the left side, with hamstring spasm. It was impossible to extend the leg completely while sitting. She had pain in both legs at night.

August 26, both iliotibial bands were divided. On the fifth day she had relief from the discomfort. She was seen on September 20, and while left sided sciatica was still present it was not so severe. The patient was last seen October 22, and at that time the sciatica had entirely disappeared. Straight leg raising was about 75 degrees.

SUMMARY

1. The chronic lame back problem has not yet been solved.

2. The contracted fascia lata is a common cause of lame backs and has been unrecognized.

3. If this is so, it would seem, in the presence of normal roentgen studies, that fusion of the sacro-iliac or lumbosacral regions should not be done.

4. When the fascia lata is contracted, it must produce bad posture.

5. Therefore, apparatus designed to hold the abdomen or the back, or exercises given to straighten the back will be ineffectual against such severe contractures.

6. The method of treatment proposed is so simple and so beneficial that it should have a place in the armamentarium of the surgeon.

7. No attempt has been made in this article to discuss other known conditions that cause low back disabilities

234 Marlborough Street.

CUTANEOUS MANIFESTATIONS OF THE LYMPHOBLASTOMAS

REPORT OF A CASE OF HODGKIN'S DISEASE

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The general practitioner is often called on to diagnose and treat various types of skin disorders. Many of these are local conditions peculiarly confined to the skin, whereas others are definite cutaneous manifestations of some systemic disease. Some run a benign course, while others are expressions of a neoplastic process. Any discussion that will aid the physician in arriving at a diagnosis or arouse his suspicions that he is dealing with a cutaneous expression of some hidden visceropathy seems worth while. With this in view, a general discussion of the lymphoblastomas would seem to be of value.

In this discussion the term lymphoblastoma is used to designate certain diseases of the hematopoietic system. Those which often give rise to cutaneous manifestations are Hodgkin's disease, mycosis fungoides, the leukemias (both myeloid and lymphocytic) and

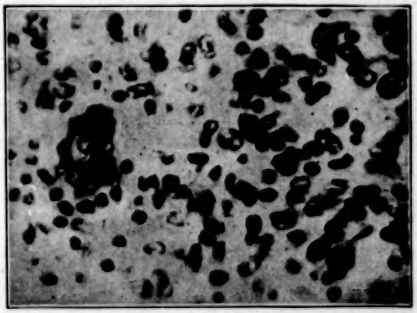

Fig. 1.—Section of the lymph nodes showing numerous large vesicular cells and one giant cell.

lymphosarcoma. Occasionally these manifest themselves here before their demonstration in other parts of the body is possible.

It is not within the scope of this paper to discuss the various symptoms and cutaneous manifestations of these individual diseases. They have in common one cutaneous manifestation, however, which is so frequently observed that it deserves special emphasis. This is a generalized exfoliative dermatitis, or universal scaly erythroderma. Whenever such a condition is encountered and persists in spite of treatment, it should always be regarded as belonging to one of the malignant lymphadenoses until definitely ruled out.

Keim [1] has recently discussed the interrelationship of the various lymphoblastomas. He believes that this group of diseases presents itself under multiple clinical pictures and that the various clinical types encountered present interchangeable pathologic observations. He adds that the one constant pathologic condition in all

Studies and Contributions from the Department of Dermatology and Syphilology, University of Louisville School of Medicine, service of Dr. C. B. Wilmott.

1. Keim, H. L.: The Lymphoblastomas: Their Interrelationships, Arch. Dermat. & Syph. 19: 533 (April) 1929.

of these is a cell belonging to the lymphocytic series and, "until further information is forthcoming concerning distinct etiology, the term lymphoblastoma would seem to be justified on the basis of the genetic relationships existing between the members of this group."

All of these diseases are so closely interrelated and merge one into the other so often that one cannot predict that a typical case of cutaneous Hodgkin's disease might not present a leukemic blood picture before death. Cases of exfoliative dermatitis have been known to persist for months with no evidence other than the biopsy that the condition was lymphoblastoma. Occasionally these symptoms have been seen to disappear under roentgen therapy; the patient enjoys a remission for months and even years, only to return later with sufficient clinical evidence to permit then a specific diagnosis of leukemia, Hodgkin's disease or one of the other associated conditions. Transitions and mutations from one type to another have been reported by numerous investigators, including Wile,[2] Kristjanson,[3] Keim,[1] Montgomery,[4] Wile and Stiles,[5] Fraser [6] and others. Ginsburg,[7] in a comprehensive review of lymphosarcoma and Hodgkin's disease, concludes that these conditions are fundamentally and biologically similar. He believes that whatever variations exist at times "are merely variations that one would expect to find in any disease affecting different individuals under different constitutional and environmental conditions."

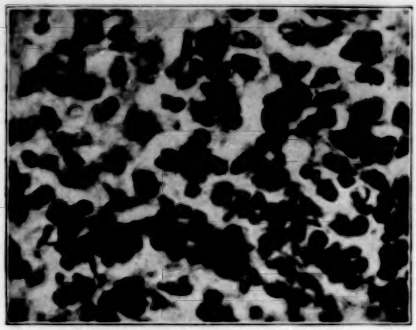

Fig. 2.—Section of the lymph node showing two mitoses and increase in stroma.

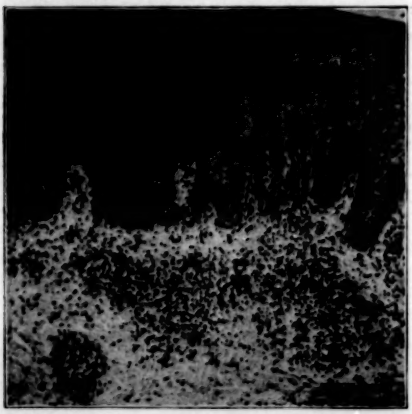

Fig. 3.—Section under low power showing dense infiltrate in upper corium, with some tendency of cells to arrange themselves in clumps.

Wile and Stiles,[5] in a recent discussion of clinical mutations in lymphoblastomas, reported a case of eighteen years' duration originally diagnosed as the prefungoid stage of mycosis fungoides, which finally developed into a typical Hodgkin's disease, proved by biopsy. They believe that "clinical mutations that occur between various types of lymphoblastomas constitute strong evidence in favor of the view that lymphoblastomas are genetically related neoplasms involving the lymphoid tissue." A similar opinion from the pathologic point of view was expressed by the late Dr. A. S. Warthin.[8]

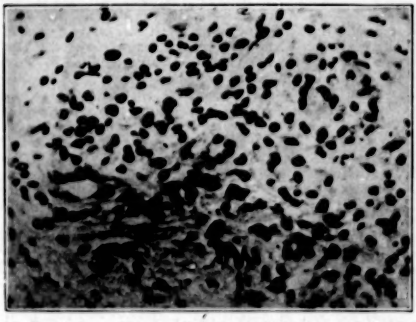

Fig. 4.—Same as figure 3 under high power, showing polymorphism of individual cells and variations in cell type.

Although I am in accord with this view concerning the interrelationship of this group of diseases—as well as their neoplastic origin—one should be appreciative of the relationship of Hodgkin's disease to tuberculosis, as emphasized by L'Esperance,[9] Rulison [10] and others. The former, in addition to recovering the avian type of tubercle bacilli from certain cases, likewise developed an avian tuberculin used intradermally as a diagnostic aid. Steiner [11] found no evidence of specific sensitization to the avian tuberculin protein in his cases. He found a marked desensitization (absence of sensitiza-

2. Wile, U. J.: Cutaneous Manifestations of Systemic Disease, Ann. Int. Med. **5**:9 (March) 1932.
3. Kristjanson, H. T.: Complement Fixation in Hodgkin's Disease and Allied Affections, Am. J. M. Sc. **156**:720-725 (Nov.) 1918.
4. Montgomery, Hamilton: Exfoliative Dermatosis and Malignant Erythroderma: The Value and Limitations of Histopathologic Studies, Arch. Dermat. & Syph. **27**:253 (Feb.) 1933.
5. Wile, U. J., and Stiles, Frank, Jr.: Clinical Mutations in Lymphoblastomas, to be published.
6. Fraser, J. F.: The Pathology of Mycosis Fungoides, J. Cutan. Dis. **35**:793, 1917; The Interpretation of Mycosis Fungoides As a Variety of Lymphosarcoma, Arch. Dermat. & Syph. **11**:425 (April) 1925.
7. Ginsburg, Solomon: Lymphosarcoma and Hodgkin's Disease: Biologic Characteristics, Ann. Int. Med. **8**:14 (July) 1934.
8. Warthin, A. S.: Genetic Neoplastic Relationships of Hodgkin's Disease, Aleukemia and Leukemic Lymphoblastoma and Mycosis Fungoides, Ann. Surg. **93**:153 (Jan.) 1931.
9. L'Esperance, Elise S.: Experimental Inoculation of Chickens with Hodgkin's Nodes, J. Immunol. **16**:37 (Jan.) 1929.
10. Rulison, R. H.: Hodgkin's Disease of the Skin: Report of a Case, Arch. Dermat. & Syph. **29**:3 (Sept.) 1930.
11. Steiner, P. E.: Etiology of Hodgkin's Disease: II. Skin Reaction to Avian and Human Tuberculin Proteins in Hodgkin's Disease, Arch. Int. Med. **54**:11 (July) 1934.

tion) to both human and avian strains of tuberculin. He believes that Hodgkin's disease either desensitizes to these tuberculin proteins or else occurs only in persons in whom the normal sensitization to the tuberculin protein is impossible. He cannot conceive of either of these occurring without some relation to tuberculosis.

The greatest aid in the diagnosis of the lymphoblastomas is the early skin and lymph gland biopsy. The histology is quite characteristic—an infiltrate of lymphoblastic cells occurring in the upper portion of the corium either as a sharp, bandlike infiltrate or in clumps. The lymph gland biopsy will usually show marked hyperplasia and the same type of lymphoblastic cells as seen in the skin. Numerous cases have been so diagnosed from biopsy months and even years before there was other evidence clinically to substantiate a specific diagnosis. Just as there are mutations and interrelationships clinically in these diseases, so there are pathologically. Frequently the biopsy reveals only a nonspecific lymphoblastoma the specificity of which can be determined, if at all, only by the clinical observations. Quite often the clinical and pathologic diagnoses differ with regard to the specificity of the lymphoblastomatous process. Many cases of cutaneous and hematogenous leukemia have been diagnosed Hodgkin's disease at postmortem by competent pathologists. McCartney [12] reported a case in which the microscopic studies of the lymph glands revealed four distinct histologic types. In some areas the pathology was typical of Hodgkin's disease with Dorothy Reed cells, while other portions simulated lymphatic leukemia, primary endothelioma of lymph nodes, and lymphosarcoma. Such occurrences are not at all uncommon and perhaps explain the differences in pathologic diagnoses often obtained.

According to Wile,[2] the lymphoblastomas may manifest themselves cutaneously in three different ways. The first group are true metastatic lesions occurring in the presence of lymphadenotic blood pictures. These may express themselves cutaneously as tumors, infiltrations, hyperpigmentation or otherwise. In the second group the cutaneous expressions may antedate involvement of the blood and lymph glands. Most of the cases of exfoliative dermatitis fall in this group. The third group includes the scaly erythrodermas, localized tumors, and so on, in which transitory deviations from normal blood pictures are found, as well as changes in the lymph glands. Wile believes that, although the majority of the cases are lymphoblastomas at the onset, there are perhaps a few cases in which the lymphadenosis is secondary to a prolonged skin insult. It is quite likely that the following case is such an example:

REPORT OF CASE

History.—A man, aged 55, referred to me Aug. 22, 1933, by Dr. Harry S. Frazier had been confined to bed intermittently for the past year and continuously for the past few months. In September 1932 he got some rust remover on his hands and wrists and, before washing this off, had contaminated his penis and scrotum. The following day he noted itching of the hands, wrists and scrotum. He stated that these were red and inflamed. The eruption was treated blandly but proved resistant and gradually spread over his entire body. The condition was very pruritic and gradually exfoliation occurred in sheets of epidermis. He lost considerable hair from his scalp, eyebrows, axillae and pubic area. He became very weak and lost from 40 to 50 pounds (18 to 23 Kg.). He had numerous remissions and exacerbations, some of which were associated with weeping and oozing.

The original diagnosis was contact dermatitis presumably from rust remover.

In March 1933 the patient consulted Dr. William Allen Pusey of Chicago, who made a tentative diagnosis of lymphoblastoma. At this time a biopsy from the skin was taken and proved to be consistent with this opinion. The patient was given some roentgen therapy with no apparent benefit. Since his return home from Chicago he had received no further roentgen therapy and had become much worse.

In 1913 the patient was ill for twelve or thirteen months. He consulted numerous physicians but no final diagnosis was ever made. The symptoms were loss of weight and inability to walk for a time. He gradually recovered. In 1921 he fell from a Pullman berth and dislocated (?) a vertebra. He was an invalid for about nine months but finally recovered. The rest of his past history is unessential.

Examination.—The patient was lying in bed obviously in agony from scratching. There was definite evidence of loss of weight. There was marked thinning of the scalp and eyebrows and practically total alopecia of the axillae and pubic area. There was generalized lymphadenopathy, the largest glands being found in the axillae. These were lemon size and moderately firm but not matted together. The liver was felt a hand's breadth below the right costal margin; the edge was hard but not tender. The spleen was questionably palpable. The knee jerks were diminished. The patient presented a universal scaly erythroderma, the scales varying from a branny type over the legs to thicker ones over the back. In areas the skin was thickened and lichenified, but there were no infiltrations or tumors noted. There was marked hyperkeratosis of the palms and soles. A tentative diagnosis of lymphoblastoma was made, but it was necessary to substantiate this by biopsy and rule out certain other possibilities.

The blood Wassermann reaction was negative. Urinalysis was essentially negative. Slides were sent to the Simpson Memorial Institute for Medical Research at Ann Arbor, Mich., and the report in part was as follows: "There is absolutely no evidence of leukemia. The differential count is as follows: polymorphonuclear neutrophils 65 per cent, eosinophils 18 per cent, large lymphocytes 2 per cent, small lymphocytes 8 per cent, monocytes 7 per cent. This differential count can be accounted for both by a lymphoblastoma such as Hodgkin's disease or as a result of roentgen therapy. Frequent blood counts were made, and, although they showed a secondary anemia and an eosinophilia, at no time was there evidence of a leukemic blood picture. Tests for arsenic were negative on the urine, hair and cutaneous scales. Roentgen examination of the lungs, September 15, was, according to Dr. J. C. Bell, essentially negative; there was no evidence of enlargement of the mediastinal glands.

Gordon's test (intracerebral inoculation of rabbits) was not performed, nor was avian tuberculin employed intracutaneously.

Biopsy.—September 24 a lymph gland was removed from the right inguinal region and with it a piece of the overlying skin. A diagnosis of Hodgkin's disease of the lymph glands was made by Dr. A. J. Miller and corroborated by Dr. Jaffé of Chicago (figs. 1 and 2). Dr. Hamilton Montgomery of the Mayo Clinic reported the following on examination of the skin biopsy (figs. 3 and 4): "The skin section shows a definite picture of lymphoblastoma, nonspecific, however, in type. The infiltrate in the upper cutis is too varied and dense and shows too much polymorphism of the individual cells and variation in cell types to permit regarding the picture as a simple inflammatory affair. There are no Dorothy Reed cells present to warrant a diagnosis of Hodgkin's disease, but otherwise the infiltrate together with the eosinophilia would fit in with either Hodgkin's or mycosis fungoides. The usual epidermal changes with microabscess formation seen in mycosis fungoides are absent. The infiltrate is not uniform or dense enough for leukemia cutis or lymphosarcoma, nor does it have enough immature cell forms for these two conditions. In conclusion, therefore, I would make a diagnosis of lymphoblastoma, nonspecific in type." Dr. Gordon, acting pathologist at the University of Michigan Hospital, corroborated the diagnosis of a nonspecific lymphoblastoma and added that it might become leukemic at any time.

Treatment and Course.—The patient was entirely too weak to bring into the office for roentgen therapy, so it was necessary

12. McCartney, J. S., Jr.: Malignant Lymphoblastoma: Report of Two Cases, J. Cancer Research 12:195-207 (Sept.) 1928.

to resort to other local means in order to give him relief from his intractable pruritus. Treatment consisted of wet boric acid dressings continuously and corn starch and baking soda baths. The latter afforded him marked relief from his itching and he gradually spent most of his time in the tub, even eating and sleeping there. Various other local measures were employed, including the usual bland lotions, ointments and powders. In addition he was given calcium, iron and solution of potassium arsenite by mouth. His itching was so intolerable that four or six times the normal sedative dose was of no avail. After several days under the foregoing regimen, roentgen therapy was started. This consisted of generalized superficial therapy as well as high voltage roentgen therapy over the glands. Between September 14 and November 9 the patient received filtered x-ray treatments to the axillary, inguinal and retroperitoneal glands (factors: 4 mm. aluminum filter, 5 milliamperes, 135 kilovolt peak, distance 16 inches, time five minutes, 120 roentgens). In addition, he also received generalized and localized superficial therapy between Aug. 29, 1933, and Feb. 12, 1934 (factors: no filter, 3 milliamperes, 87 kilovolt peak, distance 12 inches, time one minute, 75 roentgens). A 3 mm. aluminum filter was employed with this set-up when localized edematous swellings were treated.

The patient made noticeable improvement after three or four roentgen treatments. The relief from the pruritus was remarkable. In spite of improvement in general, there were exacerbations during which the patient would develop chills and fever, and insomnia, and would experience a return of the pruritus associated with weeping and oozing of the skin. He also experienced periods of profuse perspiration and developed intermittent edematous swellings over his body as well as some bluish black tumors. He also developed pain and weakness in the right arm, apparently due to pressure on the brachial plexus from the enlarged axillary glands.

All of these symptoms gradually subsided, the adenopathy practically disappeared, the liver edge receded, and eight weeks after beginning roentgen therapy the patient returned to his work. When I last saw him, Aug. 23, 1934, he was entirely asymptomatic. His skin, according to him, was smoother than he had ever known it to be. His weight was 206 pounds (93 Kg.). There were no appreciably enlarged glands, and the blood count, June 22, 1934, was essentially normal.

COMMENT

There were four major diagnostic possibilities in this case; namely, sensitization dermatitis (contact with an external irritant), an arsenical exfoliative dermatitis, a universal psoriasis, and lymphoblastoma.

Sensitization Dermatitis.—Although there was every reason to suspect such a diagnosis at the onset, the subsequent course and clinical picture were entirely inconsistent with such a diagnosis. The symmetry of the eruption, the keratosis of the palms and soles, the development of subcutaneous nodules, with outbursts of perspiration and fever, and the failure to respond to bland therapy, made such a diagnosis untenable.

Psoriasis.—Occasionally psoriasis is ushered in by a generalized exfoliative dermatitis, and sometimes a typical psoriasis eventually develops an exfoliative stage. There was no history of a previous psoriasis in the case under discussion, and the same factors that would rule out a sensitization dermatitis would likewise dismiss this possibility. In addition, the cutaneous biopsy was not the picture encountered in psoriasis, and of course such a condition could hardly explain the lymph gland picture of Hodgkin's disease.

Arsenical Exfoliative Dermatitis.—The generalized exfoliative dermatitis along with the loss of hair and keratoses of the palms and soles would certainly rouse suspicion of arsenismus. There was evidence, however, against such a diagnosis. There was no history of arsenic ingestion, arsenic was not demonstrated in the urine, hair, nails or cutaneous scrapings, and there were no other signs or symptoms of arsenic poisoning. Add to this lack of evidence the edematous nodules found in the skin and the information gleaned from the biopsy of skin and lymph glands, and one is forced to exclude this from the diagnostic possibilities.

Lymphoblastoma.—The presence of a generalized exfoliative dermatitis along with a palpable liver, generalized lymphadenopathy, loss of weight, fever, and development of subcutaneous nodules, was in itself sufficient to place the diagnosis in the group of lymphoblastomas. The cutaneous biopsy definitely showed a nonspecific lymphoblastomatous infiltrate, whereas the lymph gland was even more specific, permitting a diagnosis of Hodgkin's disease. Had it been possible to secure a biopsy from one of the bluish tumors or subcutaneous nodules, no doubt a typical Hodgkin's architecture would have been found. According to Rulison,[12] 25 per cent of all cases of Hodgkin's disease show skin manifestations, and in 10 per cent of the cases the cutaneous are the first symptoms.

Cutaneous Hodgkin's disease can be divided into two types: the essential type, in which there are definite plaques and nodules with a typical Hodgkin's picture microscopically, and the so-called nonspecific type, in which one finds prurigo-like nodules, excoriations, pigmentation, and a generalized exfoliative dermatitis. The latter are usually toxic manifestations and, as a rule, do not show the typical microscopic changes of Hodgkin's disease, although at times they may. The microscopic changes, however, are not always constant, varying at times from a simple inflammatory process to a typical lymphoblastomatous infiltrate with Dorothy Reed cells.

Cole [13] placed the order of frequency of signs and symptoms in Hodgkin's as follows: diffuse exfoliative dermatitis, pruritus, prurigo-like eruptions, urticaria, edematous swellings, pigmentation, outbursts of perspiration, alopecia, dryness of the skin, icterus, purpuric lesions, and red or bluish tumors of the skin. In the case here reported, all these manifestations except icterus were present at some time or other.

Wile and Stile's [5] paper has shown that the prognosis in such cases is better than heretofore believed. Their patient has already lived eighteen years since the diagnosis was first made.

At the present time our patient is in a state of remission, is entirely asymptomatic, and is enjoying excellent health. No one can predict the future course. Whether or not he will eventually develop typical clinical Hodgkin's disease, the tumors of mycosis fungoides, lymphosarcoma, or the blood picture of leukemia is not known, but no doubt one of these will eventually transpire.

CONCLUSIONS

1. In a case of Hodgkin's disease of the skin, the cutaneous manifestations were the first symptoms, preceding the fever and adenopathy.

2. Every case of generalized exfoliative dermatitis or universal scaly erythroderma should be regarded as a possible cutaneous manifestation of one of the lymphadenoses.

3. The early cutaneous and lymph gland biopsy is of great value.

4. Roentgen therapy to the skin and lymph glands is the most useful form of treatment at the present time.

Heyburn Building.

13. Cole, H. E.: The Cutaneous Manifestations of Hodgkin's Disease: Lymphogranulomatosis, J. A. M. A. 69:341 (Aug. 4) 1917.

SUBACUTE COMBINED DEGENERATION OF THE SPINAL CORD IN PERNICIOUS ANEMIA

THE COMPLETE ARREST OF THE LESION WITH PARENTERAL LIVER THERAPY

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A survey of the recent literature on the effectiveness of liver therapy in subacute combined degeneration of the spinal cord associated with pernicious anemia reveals grossly contradictory opinions. Seyderhelm [1] believes that this disorder of the nervous system is entirely uninfluenced by such therapy, and Cohen,[2] McAlpine,[3] Curschmann,[4] Krause,[5] Fahr,[6] Carey,[7] Davison,[8] Sargant,[9] Ahrens,[10] Thaysen,[11] and Morawitz,[12] among others, believe that unfavorable progression of the disease may occur in spite of liver treatment. On the other hand, optimistic reports have been recorded by Minot and Murphy,[13] Richardson,[14] Fried,[15] Ungley and Suzman,[16] Suzman,[17] Lottig,[18] Starr,[19] Strauss and Castle,[20] Baker, Bordley and Longcope,[21] Meulengracht [22] and many other clinicians.

Our purpose in this communication is threefold: 1. To consider why such different results have been obtained by various clinicians. 2. To present the data obtained from a critical study of twenty-six patients with outspoken spinal cord degeneration treated by liver extract injections for an average period of three years. 3. To consider the significance of the fact that spinal cord disease has not developed in any of eighty patients with pernicious anemia while under adequate parenteral liver therapy during an average period of three years, whereas the reported incidence of this condition in pernicious anemia indicates that a significant number of these patients would doubtless have developed spinal cord lesions if untreated during that period of time.

This paper is concerned only with changes referable to the spinal cord. Both the peripheral nerves and the brain may be involved in pernicious anemia, but changes in these parts of the neural system are not for consideration here.

The contradictory reports in the literature may be best understood by considering certain fundamental facts relevant to the spinal cord symptomatology. First of these is the nature of the pathologic lesions. Fried's summation [15] seems sufficient: "Indeed, the pathologic process, like the clinical picture, passes through a series of nuances from barely demonstrable degenerative changes to a complete degeneration of nerve cells and axon cylinders followed by a gliosis." Later he states: "Whereas in visceral organs degenerative cellular changes are often followed by a *restitutio ad integrum*, analogous processes of regeneration of nerve cells or nerve fibers in the central nervous system have never been observed." Regeneration of completely destroyed nerve cells and fibers of the central nervous system following any therapy cannot be expected in subacute combined degeneration of the spinal cord any more than in tabes dorsalis or paralytic poliomyelitis. It is true, however, that in both the latter conditions, provided renewed injury is prevented, much improvement may be expected over a long period of time through reeducation and because it is possible that unaffected cells and fibers may take over functions previously mediated by destroyed pathways. While it is apparent that a nerve cell or fiber in the central nervous system cannot regenerate when completely destroyed, it appears probable that function may be lost to a greater or less extent in the early stages of the disease process while regeneration is still possible.

These considerations lead to the conclusion that the effectiveness of therapy in subacute combined degeneration of the spinal cord must be determined not by the degree of improvement but by the evidence of arrest of the process.

Secondly, apparent improvement in the neurologic condition may be entirely due to betterment of general health and strength, reeducation and training, and improved circulation and subsidence of edema in the spinal cord. In fact, many of the reports that indicate remarkable improvement in patients with spinal cord lesions fail to consider the fact that when the patients were first observed they often suffered from severe anemia and other manifestations of the deficiency state as well as from spinal cord lesions. Marked improvement in such individuals following liver therapy has no necessary significance with regard to the state of the spinal cord cells or nerve fibers.

Furthermore, since peripheral nerves are capable of complete regeneration as long as the cell body has not degenerated, signs and symptoms referable to such peripheral nerve injury may completely disappear and lead to the impression that marked regeneration has occurred in the spinal cord.

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1. Seyderhelm, R.: Möglichkeiten und Grenzen der Lebertherapie, Deutsche med. Wchnschr. 55:1704 (Oct. 11) 1929.

2. Cohen, A. E.: Subacute Combined Sclerosis, Progressive During Remission of Pernicious Anemia, J. A. M. A. 90:1787 (June 2) 1928.

3. McAlpine, Douglas: A Review of the Nervous and Mental Aspects of Pernicious Anemia, Lancet 2:643 (Sept. 28) 1929.

4. Curschmann, Hans: Die Nervenstörungen der Biermerschen Anämie und die Lebertherapie, Med. Klin. 25:1767 (Nov. 15) 1929.

5. Krause, F.: Ueber das Verlangen der Lebertherapie bei den funikulären Erkrankungen der perniziösen Anämie, Klin. Wchnschr. 8:2177 (Nov. 19) 1929.

6. Fahr, T.: Pathologisch-anatomische Beiträge zur Kritik der Lebertherapie bei der perniziösen Anämie, Deutsche med. Wchnschr. 57:1 (Jan. 2) 1931.

7. Carey, J. B.: Pernicious Anemia with Fatal Termination During a Liver Diet, Arch. Int. Med. 47:893 (June) 1931.

8. Davison, Charles: Subacute Combined Degeneration of Cord; Changes Following Liver Therapy; A Histopathologic Study, Arch. Neurol. & Psychiat. 26:1195 (Dec.) 1931.

9. Sargant, William: Treatment of Subacute Combined Degeneration of the Cord by Massive Iron Dosage, Lancet 1:230 (Jan. 30) 1932.

10. Ahrens, R. S.: Neurologic Aspects of Primary Anemia, Arch. Neurol. & Psychiat. 28:92 (July) 1932.

11. Thaysen, T. E. H.: Death from Nervous Complications of Pernicious Anemia; Rôle of Liver Therapy, Hospitalstid. 76:23 (Jan. 5) 1933; abstr. J. A. M. A. 100:1378 (April 29) 1933.

12. Morawitz, P.: Kritik und Anleitung der Anämiebehandlung, Deutsche med. Wchnschr. 59:560 (April 14) 1933.

13. Minot, G. R., and Murphy, W. P.: A Diet Rich in Liver in the Treatment of Pernicious Anemia: Study of 105 Cases, J. A. M. A. 95:759 (Sept. 3) 1927.

14. Richardson, Wyman: Pernicious Anemia, New England J. Med. 200:540 (March 14) 1929.

15. Fried, B. M.: Subacute Combined Degeneration of the Spinal Cord in Pernicious Anemia, J. A. M. A. 92:1260 (April 13) 1929.

16. Ungley, C. C., and Suzman, M. M.: Subacute Combined Degeneration of the Cord: Symptomatology and Effects of Liver Therapy, Brain 52:271 (Sept.) 1929.

17. Suzman, M. M.: Effects of Liver Therapy in One Hundred Cases of Subacute Combined Degeneration of the Cord, Tr. Am. Neurol. A., 1931, p. 339.

18. Lottig, Heinrich: Zur Frage der Beeinflussung der Rückenmarkserkrankung bei Biermerscher Anämie durch Leberdiät, München. med. Wchnschr. 77:858 (May 16) 1930.

19. Starr, Paul: The Prevention of Spinal Cord Degeneration in Pernicious Anemia, J. A. M. A. 96:1219 (April 11) 1931.

20. Strauss, M. B., and Castle, W. B.: Parenteral Liver Therapy in the Treatment of Pernicious Anemia, J. A. M. A. 98:1630 (May 7) 1932.

21. Baker, B. M., Jr.; Bordley, James, III, and Longcope, W. T.: The Effect of Liver Therapy on the Neurologic Manifestations of Pernicious Anemia, Am. J. M. Sc. 184:1 (July) 1932.

22. Meulengracht, E.: Verhütung und Behandlung der Rückenmarksstörungen bei perniziöser Anämie, Klin. Wchnschr. 12:1163 (July 29) 1933.

The third point to be borne in mind is that sepsis has a deleterious effect on many kinds of spinal cord lesions and may inhibit the effect of liver therapy in pernicious anemia not only on the spinal cord but on the blood. The study of Cobb and Coleman [23] suggests that the healing of traumatic lesions of the spinal cord may be delayed by the presence of cystitis. Patients with decubitus ulcers and sloughs, those with pronounced urinary tract infections secondary to "cord bladders" and those with other severe febrile septic conditions usually have poor prognoses. The fact that such patients do not do well is not to be construed as meaning that liver therapy has no effect on the spinal cord but rather that it has no effect on sepsis.

The fourth and probably most important consideration is the fact that there is no "standard" dose of liver, stomach or their products, nor is the "usual" dose adequate for many patients. "Adequate" by dictionary definition means "sufficient for some (specific) requirement." When oral therapy is employed it is not uncommon to find that patients cannot ingest a sufficient amount of potent material for their individual needs because of nausea, vomiting or diarrhea, produced in some instances by the large amounts of liver or liver extract. Although the exceptional patient may be able to take more, 400 Gm. of fresh liver or the extract derived from 1,000 Gm. of liver is about the maximum daily amount that can be continued indefinitely by mouth without producing distaste or nausea.[24] The fact that even these quantities fail to maintain the blood at a normal level in a significant number of cases, about 5 per cent according to Beebe and Lewis,[25] makes it apparent that some patients cannot receive without great difficulty enough potent material by mouth. As more potent material is often required to influence spinal cord lesions than to improve the blood, it becomes apparent that many patients cannot ingest satisfactory amounts of potent material for their given cases.

In this clinic we have encountered patients who were showing unfavorable progression of their spinal cord lesions in spite of the fact that they were taking all the liver and liver extract it was found possible for them to ingest. That their unfavorable course was due to the inadequacy of even the massive amounts that they took by mouth was clearly evidenced in eight of our twenty-six cases by the favorable course of events following the parenteral injection of liver extract equivalent in hematopoietic effectiveness to still greater quantities of orally administered material. Many of the unfavorable reports in the literature are without doubt due to the failure to realize that there is no "standard" dose of liver and may well be compared to unfavorable results that would be obtained in diabetes mellitus if all patients were given a "standard" dose of insulin. In the latter disease, failure to control the blood sugar level with a certain dose of insulin usually is considered indicative not that insulin is ineffective but that more insulin is required. In subacute combined degeneration of the spinal cord it must similarly be understood that the failure to arrest the progress of the lesion in an appropriate period of time nearly always means that more liver, stomach or allied potent material is required unless such severe infection or damage to vital organs is present that arrest cannot be achieved. That arrest is possible in the absence of such factors is evidenced by the data to be presented.

A fifth possible reason for disagreement in the statements of the literature lies in the recording of results obtained over too brief periods of time. When one recalls that many months may be required for the regeneration of a peripheral nerve following trauma or neuritis, it is obvious that conclusions cannot be drawn from short periods of observation of a disease that involves destruction of fibers within the central nervous system. The shortest period of observation in any of the cases reported on here was fourteen months.

23. Cobb, Stanley, and Coleman, C. C.: The Course of Recovery Following Trauma of the Spinal Cord, Arch. Surg. 3: 132 (July) 1921.
24. Minot, G. R.: Personal communication to the authors.
25. Beebe, R. T., and Lewis, G. E.: The Maintenance Dose of Potent Material in Pernicious Anemia, Am. J. M. Sc. 181: 796 (June) 1931.

PROCEDURE

Woltman,[26] Schilling,[27] Ahrens,[10] Smithburn and Zerfas [28] and other physicians have noted the occurrence of neural symptoms in from 80 to 100 per cent of patients with pernicious anemia. Many of the patients, however, have no more than paresthesias and slight changes in proprioceptive sensation. Suzman [17] determined that, although 73 per cent of his series of pernicious anemia patients had neural symptoms, only 41 per cent were suffering from subacute combined degeneration of the spinal cord. Young [29] found that 20 per cent of his 515 patients with pernicious anemia had well defined spinal cord disease marked by reflex changes and ataxia, although many other patients had lesser changes referable to the neural system. In order to evaluate results of therapy, we selected for special study twenty-six consecutive patients who had spasticity or ataxia, or both, resulting in definite disturbances in locomotion; in short, patients who had at least moderately severe degeneration of the spinal cord. Without exception these patients also had paresthesias in the hands and feet, and all had either diminished or absent vibratory sense in the legs, and moderate to marked muscle weakness. Impotence, not due to age, or sphincter disturbances, were encountered in five patients. Girdle sensations were common. Patients with decubitus or pronounced urinary tract infections were excluded in selecting these twenty-six cases. For this study we have evaluated the "initial" status of the spinal cord involvement only after the erythrocytes were 3.5 million per cubic millimeter or more. During the period when the "initial" neurologic status of the twenty-six patients was being evaluated, the average erythrocyte count was 4.30 millions per cubic millimeter, the hemoglobin 84.6 per cent (13.18 Gm. per hundred cubic centimeters), and the color index 0.98. At the time of final evaluation of the neurologic status the average erythrocyte count was 4.78 millions per cubic millimeter, the hemoglobin 94.6 per cent (14.74 Gm. per hundred cubic centimeters), and the color index 0.98. Many patients showed striking improvement in signs and symptoms referable to the neural system during the one or two months when the erythrocytes were increasing from low levels to above 3.5 millions per cubic millimeter. Although it is probable that the most effective opportunity for neutralizing the physiologic damage to the neural system would be at this time, data on the improvement during this period of rapid

26. Woltman, H. W.: The Nervous Symptoms in Pernicious Anemia: An Analysis of One Hundred and Fifty Cases, Am. J. M. Sc. 187: 400 (March) 1919.
27. Schilling, Viktor: Die Wirksamkeit der Lebertherapie bei der funikulären Medullose (Myelose) der Anämie perniciosa, Fortschr. d. Therap. 7: 5 (Jan. 10) 1931, cited by Baker, Bordley and Longcope.[8]
28. Smithburn, K. C., and Zerfas, L. G.: The Neural Symptoms and Signs in Pernicious Anemia, Arch. Neurol. & Psychiat. 25: 1100 (May) 1931.
29. Young, R. H.: Neurologic Features of Pernicious Anemia, J. A. M. A. 99: 612 (Aug. 20) 1932.

regeneration of blood have been excluded, since such betterment might have been due to the relief of the anemia, its attendant physiologic alterations and the acute deficiency state in general; hence any conclusions based on such improvement would be open to serious criticism.

Since there occur fluctuations in neurologic signs and symptoms from day to day that cannot be related to significant anatomic spinal cord changes, three successive examinations over a period of from one to two months were made after the patients' red blood cells had reached a level of 3.5 millions or more per cubic millimeter. Abnormalities persisting at each of these three examinations were considered significant. Similarly three examinations over a period of from one to two months were made from one to four years later. During the intervening period patients were examined neurologically every three to four months. In general, these neurologic examinations were made by two of us who had no particular further knowledge of the patient's blood, details of treatment, and the like.

As has already been mentioned, eight of the twenty-six patients had had a progression of their neurologic manifestations prior to the time the present observations were begun and while they were taking as much liver or liver extract as they could be made to ingest. This 30 per cent incidence of highly resistant cases among our twenty-six cases, all with advanced spinal cord lesions, is probably from four to six times as great as would be encountered in a consecutive series of pernicious anemia cases. Although it is possible that this incidence of highly resistant cases with advanced spinal cord lesions is higher than would occur in a larger series of such cases, it is probable that it represents the approximate actual incidence of such cases, although one should recognize that difficult cases are more frequently referred to a clinic than simple ones. The neurologic condition of another eight of the twenty-six cases under oral liver therapy was essentially stationary. Ten were improving coincidently with the remission of their anemia. Nineteen of the twenty-six patients had had neurologic manifestations for over a year, one for at least seven years. Seven patients had had neural symptoms for less than a year.

Treatment in all patients consisted of the intramuscular injection of Solution Liver Extract-Lilly (N. N. R.).[30] This material is an aqueous solution of "fraction G" of Cohn, Minot and their associates,[31] prepared according to the method of Strauss, Taylor and Castle.[32] Five cubic centimeters of this solution of liver extract is derived from 25 Gm. of liver and is approximately 100 times as hematopoietically effective by injection as by mouth,[33] which may also be true in respect to its effect on spinal cord lesions. Since neither the amount of liver from which an extract is derived nor the quantity of liquid in which it is dissolved indicates the potency of the product, the only suitable means at present of evaluating the latter lies in the determination of the minimum amount of extract that will produce an approximately maximal reticulocyte response in appropriate cases of pernicious anemia in relapse.[34] Approximately 5 to 10 cc. of the extract employed, derived from 25 to 50 Gm. of liver, may produce such a response when given in one dose,[30] but it often takes more than this amount to produce a maximal response in resistant cases.[30] Six of the patients either injected themselves or had members of their families do so for them. These individuals usually took for one dose from 2 to 5 cc. of the liver extract solution. The remaining twenty patients received their liver extract in the clinic, 10 cc. being injected into the gluteal muscles at a time. The average amount of extract received per week by the twenty-six patients was 10 cc. The maximum amount given to any patient was 10 cc. twice a week, and the minimum 10 cc. once in three weeks. The keynote of the treatment of these patients was that, no matter how much liver extract was being given, the amount was increased whenever the progress of the patient was unsatisfactory.

These patients given parenterally the extract, on the average, derived from 50 Gm. of liver per week received approximately the equivalent of the same extract for oral use derived from 5,000 Gm. of liver per week, or 714 Gm. per day, which is about 50 per cent more than the amount taken by mouth by many patients. It is our belief that the results recorded were not due to any specific or peculiar virtue of intramuscular injection but rather to the larger equivalent amounts that were administered as compared to the usual orally treated patient. It is, of course, also true that parenteral therapy eliminates the possibility of faulty gastro-intestinal absorption.

RESULTS

For the sake of brevity and clarity the results of approximately 300 neurologic examinations made on the twenty-six patients are summarized in table 1. The average period of time elapsing before the final evaluation of neurologic signs was 34 months, varying from fourteen to forty-six months. Changes in neurologic signs of the upper extremities are not recorded in the table. In general, these signs have paralleled, but with a lesser degree of abnormality, those referable to the legs.

Three main points stand out clearly in this tabulation. First, and of greatest significance, is that in no instance did a single objective neurologic sign become more marked during the period of treatment, nor did an abnormal sign, not previously present, appear. Complete objective arrest of the lesion has occurred in every case.

Second, subjective improvement of a greater or less degree appeared in every patient. In two patients this was very slight. In others it enabled previously bedridden individuals to return to their usual occupation. Nevertheless, such changes may be due entirely to reeducation and training achieved in the presence of a definite, but completely arrested, spinal cord lesion. It is to be emphasized again that the tremendous gains in strength and activity often observed in such cases are not necessarily evidence of regeneration of the spinal cord fibers or cells.

Third, excluding changes in gait and paresthesias, approximately 58 per cent of all the abnormal signs encountered in the twenty-six patients remained objectively unchanged (table 2). Seventeen per cent of all the abnormal signs disappeared and 25 per cent of such signs were present in less intensity. When the

30. Eli Lilly & Co., Indianapolis, supplied the extract that was used.

31. Cohn, E. J.; Minot, G. R.; Fulton, J. F.; Ulrichs, H. F.; Sargent, P. C.; Weare, J. H., and Murphy, W. P.: The Nature of the Material in Liver Effective in Pernicious Anemia: I, J. Biol. Chem. 74:1 xxix (July) 1927.

32. Strauss, M. B.; Taylor, F. H. L., and Castle, W. B.: Intramuscular Use of Liver Extract, J. A. M. A. 97:313 (Aug. 1) 1931.

33. Ginsalen, M.: Ein Hochwirksamer, injizierbarer Leberextrakt, Klin. Wchnschr. 9:2099 (Nov. 8) 1930. Castle, W. B., and Taylor, F. H. L.: Intravenous Use of Extract of Liver, J. A. M. A. 96:1196 (April 11) 1931. Strauss, M. B., and Patek, A. J., Jr.: Unpublished observations.

34. Minot, G. R.: The Interpretation of Reticulocyte Responses in Pernicious Anemia, Tr. A. Am. Physicians 49:287, 1934.

TABLE 1.—*The Results of Parenteral Liver Therapy in Twenty-Six Cases of Pernicious Anemia with Subacute Combined Degeneration of the Spinal Cord*

Case; Sex; Age, Years	Time of Examination	Red Blood Cells, Millions per Cu. Mm.	Hemoglobin, per Cent	Abnormality of Gait	Romberg's Sign	Incoordination	Position Sense	Vibratory Sense	Paresthesias	Knee Jerks	Ankle Jerks	Babinski's Sign	"Subjective" Changes at End of Period Indicated
1, ♂ 38	Initial exam.	3.59	71	N	N	N	—	– – – –	++	++	++	N	Very much stronger; walks several miles daily; has returned to work; libido and potentia, absent 18 mos., have returned
	46 mos. later	5.02	85	N	N	N	N	– – –	N	+	+	N	
2, ♀ 54	Initial exam.	4.38	75	+++	N	++	– – –	– – –	+	++	++	+	Stronger; walks much better; is able to go about unassisted
	44 mos. later	4.59	98	+++	N	++	– – –	– – –	N	++	++	+	
3, ♂ 52	Initial exam.	4.92	95	++	+	N	N	– – – –	++	N	– –	N	Stronger; libido and potentia, absent for 2 yrs., have returned
	41 mos. later	4.86	101	+	+	N	N	– – – –	+	N	–	N	
4, ♂ 57	Initial exam.	4.42	71	+	+	+	– – –	– – – –	++	N	– – – –	N	Stronger; walks better
	40 mos. later	5.47	85	+	+	+	N	– –	+	N	–	N	
5, ♂ 70	Initial exam.	4.57	88	+	N	+	–	– – – –	++	– – – –	– – – –	N	Pronounced gain in strength; walks more easily
	40 mos. later	4.81	98	+	N	+	–	– – – –	+	– – – –	– – – –	N	
6, ♀ 59	Initial exam.	6.23	102	+++	++	+++	– – –	– – – –	++	++	– – –	+	Markedly stronger; less staggering; can do own housework
	40 mos. later	5.10	101	+++	++	+	– – –	– – – –	+	++	N	+	
7, ♂ 70	Initial exam.	4.61	87	+	N	++	N	– – – –	+	+++	++	+	Patient was entirely disabled; now walks easily, feels strong, and considers himself entirely normal
	39 mos. later	5.39	104	N	N	++	N	– – –	N	++	++	+	
8, ♂ 51	Initial exam.	3.85	70	+	N	N	N	– –	+	++	++	N	Striking gain in strength and ability to walk
	39 mos. later	4.78	105	+	N	N	N	–	N	++	++	N	
9, ♀ 42	Initial exam.	3.74	71	+	+	+	– – – –	– – – –	+	++	– – –	+	Stronger; walks better; climbs stairs now without aid
	39 mos. later	4.67	84	+	+	+	– –	– – –	N	++	+	N	
10, ♂ 29	Initial exam.	4.49	92	+	N	+	– – –	– – – –	++	++	++	N	Very much stronger; walks normally; libido and potentia, absent 6 mos., have returned; is back at work
	39 mos. later	4.84	85	N	N	N	– –	– – –	+	N	+	N	
11, ♀ 60	Initial exam.	3.74	68	+	N	N	N	– – –	+	+	N	+	Very marked improvement in strength and ability to walk; can again climb ladders; no further urinary disturbances
	39 mos. later	4.32	87	+	N	N	N	– – –	N	+	N	N	
12, ♂ 50	Initial exam.	4.18	85	+++	++	+++	– – – –	– – – –	++	N	N	+	Great increase in strength; walks easily without a cane; considers himself entirely well
	38 mos. later	4.90	97	+	+	+++	– –	– –	N	N	N	+	
13, ♂ 59	Initial exam.	4.08	86	+++	+++	+	– – –	– – – –	++	++++	++++	+	Much stronger; walks better
	39 mos. later	5.04	110	++	+++	+	– – –	– – – –	+	++++	++++	+	
14, ♂ 52	Initial exam.	5.17	90	++	+	++	– – – –	– – – –	++	++++	++++	+	Pronounced improvement in strength; walks much better; feels more solid on feet; has returned to work
	29 mos. later	4.97	105	++	+	++	– – – –	– – – –	N	++++	++++	+	
15, ♂ 60	Initial exam.	4.01	90	+	N	N	N	– – –	+++	+	– – – –	N	Marked gain in strength and ability to walk; has been able to return to work
	35 mos. later	4.82	104	+	N	N	N	– – –	+	+	N	N	
16, ♂ 71	Initial exam.	3.68	85	+++	++	+++	– – – –	– – – –	+	++	++	+	Slightly stronger; walks somewhat steadier
	25 mos. later	4.65	97	+++	++	+++	– – – –	– – – –	N	++	++	+	
17, ♂ 52	Initial exam.	4.00	94	++	++	+	– – –	– – –	++	++	– – – –	N	Marked gain in strength, walks much better, steadier on feet
	33 mos. later	4.74	90	N	+	+	–	–	N	+	N	N	
18, ♂ 65	Initial exam.	3.71	80	++	++	+	– – –	– – –	++	– – – –	– – – –	+	Complete disappearance of all symptoms. This patient's cord lesions developed acutely while he was receiving inadequate parenteral liver therapy; remission commenced soon after adequate parenteral therapy
	31 mos. later	4.50	90	N	N	N	N	– –	+	N	– – – –	N	
19, ♀ 62	Initial exam.	4.28	81	+	+	+	– – –	– – –	+	+	N	N	Very great improvement generally
	29 mos. later	4.56	95	N	N	N	–	–	N	N	N	N	
20, ♀ 60	Initial exam.	3.71	71	++++	++	+++	– – – –	– – – –	++	– – – –	– – – –	++	Patient formerly bedridden, now walks about house unaided; was incontinent, now normal; this patient also had a definite multiple peripheral neuritis
	29 mos. later	4.66	81	++	++	+	– – – –	– – – –	N	N	– – – –	+	
21, ♀ 42	Initial exam.	4.24	85	+	N	+	– – – –	– – – –	+	++	++	+	Patient considers herself entirely normal
	29 mos. later	4.55	86	N	N	N	– –	– –	N	+	N	N	
22, ♀ 62	Initial exam.	3.76	85	+	N	+	–	– –	++	++	++	+	Very much stronger; walks better
	27 mos. later	4.44	94	N	N	+	–	– –	+	N	N	+	
23, ♀ 32	Initial exam.	4.29	80	+	N	+	N	–	+	++	++	+	Considerable gain in strength and ability to walk
	27 mos. later	4.58	98	N	N	N	N	–	N	+	+	N	
24, ♂ 65	Initial exam.	4.21	76	+	N	+	N	– –	++	N	N	N	Stronger; walks better; finer movements of hands much improved
	20 mos. later	4.86	101	+	N	+	N	– –	+	N	N	N	
25, ♂ 57	Initial exam.	5.28	115	+++	++	+++	– – –	– – – –	+	++	++	+	No change except for slight increase in strength and the disappearance of incontinence
	25 mos. later	4.40	94	+++	++	+++	– – –	– – – –	+	++	++	+	
26, ♀ 54	Initial exam.	5.04	92	++++	++	+++	– – – –	– – – –	+	+++	+++	+	Was bedridden; can now walk with difficulty
	14 mos. later	5.10	91	+++	++	++	– – – –	– – –	+	+++	+++	+	

N signifies normal.

The degree of abnormality is indicated by the number of plus or minus signs. Four minus signs indicate the absence of the reflex or sensation.

Conditions designated "Initial" were persistently present on three successive neurologic examinations made after the patient's erythrocyte level was 3.5 million per cubic millimeter or higher.

The conditions recorded from fourteen to forty-six months later were persistently present on three successive neurologic examinations made after that many months of parenteral liver therapy.

nature of the spinal cord lesions is considered, the remarkable fact is not that such a small number of signs decreased in intensity or became normal but that any should have done so at all. Patient 18 is of particular interest since severe neurologic symptoms and signs developed very acutely while he was receiving inadequate parenteral liver therapy. Within a month of the onset of the neural symptoms he was given intramuscularly each week the extract derived from 50 Gm. of liver. The final neurologic examination in this case showed a return to normal of all signs except that the achilles tendon reflexes and vibration sense at the ankles remained absent. This state of affairs has been repeatedly seen in other cases not included in the series of twenty-six. We believe thus that, the sooner adequate treatment is commenced after the onset of neural symptoms and signs, the greater the probability for a complete disappearance of abnormal signs, whereas such signs that have been present for over a year seldom disappear entirely.

Of additional importance are observations at this clinic on eighty other patients with pernicious anemia who have been treated similarly with parenteral injections of liver extract. These patients had in many instances evidences of mild spinal cord lesions not interfering significantly with their ability to walk. Other cases showed no objective abnormal neurologic signs. These eighty patients have been treated with liver extract parenterally for from twenty-four to forty-eight months. The average length of treatment has been three years. It is statistically certain, as mentioned at the beginning of this paper, that a number of these eighty patients would have developed spinal cord lesions or had their lesions progress within this period of time if untreated, and from our own experience it is certain that a smaller number would have developed such lesions if treated inadequately by mouth. In not one of these eighty patients has any further evidence of neural lesions appeared. It is therefore apparent that adequate parenteral liver therapy not only arrests the progress of spinal cord degeneration but prevents its development in pernicious anemia.

COMMENT

These data should not be construed to indicate that satisfactory results in the treatment of subacute combined degeneration of the spinal cord may not be obtained with oral therapy, whether by liver, liver extracts, desiccated stomach or other sources of potent material. The experience in this clinic as well as that of many other clinicians has indicated that treatment by the oral route has left nothing further to be gained from parenteral therapy in many cases. Although we know of numerous patients treated orally for more than seven years whose neurologic manifestations have not advanced, we know of no significant number of consecutive cases so treated in which not one patient has become worse. The fact remains that certain patients do become worse while taking all the potent material by mouth that they can ingest and retain. This state of affairs has been repeatedly described in the literature.

It has been suggested from time to time [35] that whole liver, desiccated stomach, and brain are superior to extracts of liver in the oral treatment of spinal cord lesions, but no one has published conclusive evidence of this. Often no proper comparisons have been made of the potency of the products used, and many instances can be found recorded in the literature [36] in which it appears probable that the effects of large doses of potent material in the form of desiccated stomach are compared with the effects of liver extract in much smaller potent dosage. As has been previously pointed out, the actual potency of the material employed, not the quantity of raw material from which it is derived, is the important factor in making a comparison. Sargant [37] has even suggested that a massive amount of iron is more effective than liver therapy. His data, however, cannot be considered satisfactory, because of his failure to take into consideration the points discussed in the introduction of this paper, and also because of the fact that liver had frequently been employed immediately before iron therapy was commenced in many of his cases. The results we have recorded indicate that entirely satisfactory results may be obtained uniformly with an extract of liver when it is given parenterally in adequate amounts for the given individual case.

TABLE 2.—*Summary of Changes in Abnormal Neurologic Signs Referable to the Legs Following Treatment of Subacute Combined Spinal Cord Degeneration in Twenty-Six Patients with Pernicious Anemia*

Neurologic Sign	"Initial" Examination: Number of Patients with Abnormal Condition	"Final" Examination: Number of Patients No Longer Presenting Abnormal Sign	"Final" Examination: Number of Patients Showing Improvement in Abnormal Sign	"Final" Examination: Number of Patients Whose Abnormal Sign Unchanged	Per Cent of Patients in Whom no Change in Abnormal Sign Occurred
Positive Romberg's sign	14	2	2	10	71
Incoordination	21	5	2	14	66
Position sense in toes					
Diminished or absent	19	3	6	10	52
Vibration sense in tibias					
Diminished or absent	26	9	11	15	57
Abnormal knee jerks					
Diminished or absent	3 | 22	5	5	12	54
Increased	19				
Abnormal ankle jerks					
Diminished or absent	9 | 22	5	6	11	50
Increased	13				
Positive sign of Babinski	16	5	1	10	62
Abnormal gait	26	9	6	11	42
Paresthesias	26	14	10	2	7

Conditions designated "initial" were persistently present in three successive neurologic examinations made after the patient's erythrocyte level was 3.5 millions per cubic centimeter or higher.

Conditions designated "final" were persistently present in three successive neurologic examinations made after from fourteen to forty-six months of parenteral liver extract therapy.

The practical application of this study is obvious. First, patients with pernicious anemia while under oral treatment should be carefully observed for the development of symptoms or signs referable to abnormality of the spinal cord and other parts of the neural system quite as much as they should be watched for abnormalities of the blood, tongue, gastro-intestinal tract, and the like. Should neural manifestations appear, one can surely arrest the process very rapidly by instituting adequate parenteral liver therapy. Secondly, patients with distinct spinal cord lesions who have not been previously treated should at once have parenteral liver therapy. Although many such individuals would make

35. Sussman,[H] Moulengracht,[H] Ungley, C. C.: Effect of Brain Diet in Pernicious Anemia, Lancet 2:163 (July 11) 1931.

36. Wilkinson, J. F.: Pernicious Anemia, Brit. M. J. 1:235 (Feb. 8) 1930. Renshaw, Arnold: Treatment of Pernicious Anemia with Desiccated Hog's Stomach, ibid. 1:334 (Feb. 22) 1930. Leschke, Erich: Die Magentherapie leberrefraktärer Fälle von perniciöser Anämie, Med. Klin. 26:1645 (Sept. 26) 1930. Wilkinson, J. F.: Treatment of Pernicious Anemia with Hog's Stomach: Report of 100 Cases, Brit. M. J. 1:85 (Jan. 17) 1931.

37. Sargant:[*] On the Treatment of the Nervous Disorders Accompanying Anemia by Intensive Iron-Therapy, Lancet 2:1322 (Dec. 17) 1932.

satisfactory progress with adequate oral therapy, the uniformity of good results obtained with parenteral treatment makes this the method of choice. Failure to arrest the process with such therapy must be taken to mean that inadequate amounts of potent extract are being employed. The essential factor in any form of treatment of subacute combined degeneration of the spinal cord in pernicious anemia must rest in individualization of the therapy to suit the needs of each patient. This must be borne in mind in considering the following routine:

In commencing the management of a previously untreated patient our usual procedure is to inject intramuscularly 10 cc. of extract derived from 50 Gm. of liver every three to four days during the first two to three weeks, followed by weekly injections of the same amount for the remainder of the first year. If satisfactory results have been obtained with regard to every aspect of the disease for a year, one may then reduce the amount to 10 cc. every second week, watching the patient with extreme care for any signs of relapse, however slight, relating to any system of the body. Should a single such manifestation appear, weekly injections of 10 cc. are at once resumed and continued indefinitely. Patients who have proved resistant to the usual amounts of potent material given orally are, as a rule, injected with 10 cc. of the liver extract each week for at least eighteen months, and then the amount may be reduced, with observation of the precautions noted. Those patients, however, who have proved resistant to large amounts of potent material given orally are usually injected with 10 cc. of the liver extract twice each week for at least two years and preferably much longer. The state of the individual patient at the end of such a period must be carefully evaluated in order to decide whether it is safe to reduce this dose. Although more than 20 cc. of the liver extract (derived from 100 Gm. of liver) per week has not been given in any of the twenty-six cases critically studied, there are cases that require more than this amount to arrest the unfavorable progress of spinal cord lesions, especially if infection or arteriosclerosis is present. It must not be forgotten, of course, that when one takes care of a patient suffering from the spinal cord lesions of pernicious anemia one must do more than see to it that the patient receives adequate amounts of potent material for his given case. The physician must treat the patient, not merely the blood and neural systems.

SUMMARY

1. Twenty-six patients with pernicious anemia and advanced subacute combined degeneration of the spinal cord were treated by the intramuscular injection of liver extract for an average period of thirty-four months. The amount of extract given varied but was selected for each patient so as to be enough to accomplish the desired effect. Complete arrest of the neural lesions occurred in every case.

2. Eighty other patients with pernicious anemia and little or no neurologic disturbances were treated in the same manner over an average period of three years. In none of these patients was there any evidence that spinal cord lesions progressed or developed under treatment.

CONCLUSION

By means of appropriate parenteral liver extract therapy for each case, the spinal cord lesions of pernicious anemia may be prevented from developing or, having appeared, may be completely arrested.

RATE OF BLOOD FLOW IN PATIENTS RECEIVING DINITROPHENOL

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Blumgart and his co-workers [1] have shown the close relationship that exists between the height of the metabolic rate and the velocity of the blood flow. This relationship was demonstrated on hypothyroid and hyperthyroid patients with the use of the radium method [2] for the determination of the speed of the flow of blood. These observations were abundantly confirmed by Tarr, Oppenheimer and Sager [3] and by Gargill,[3a] who used the sodium dehydrocholate method [4] in studying circulation time.

The conception that the amount of work done by the heart is partly determined by the metabolic rate has been substantiated and clinically applied in recent years. It has become a well established fact that when serious heart disease is associated with hyperthyroidism the cardiac embarrassment is grossly aggravated when the level of the metabolism is high and is much improved when the metabolic rate is lowered.[5] This improvement follows naturally after a procedure that lightens the heart's load through reduction of the basal metabolic rate, with consequent lowering of the cardiac rate,[6] minute volume output of the heart [7] and the velocity of the blood flow.[1] This conception has been further applied in the treatment of intractable cardiac failure, either congestive or anginal, by means of complete removal of the normal thyroid gland.[8] Improvement in the cardiac symptoms follows with the fall in the level of the basal metabolism from normal to subnormal.

Since this clear-cut association has been both logical and clinically useful, it seemed highly important to determine whether an appreciable raising of the basal metabolism with alpha-dinitrophenol would affect the dynamics of the circulation as does hyperthyroidism. Tainter's statement that dinitrophenol had been given safely to three patients suffering from angina pectoris [9] was quite provocative, because of the occasional disaster that follows the administration of thyroid substances to patients with coronary sclerosis and coincidental myx-

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2. Blumgart, H. L., and Yens, O. C.: Studies on the Velocity of Blood Flow, J. Clin. Investigation 4:1 (April) 1927.

3. Tarr, L.; Oppenheimer, B. S., and Sager, R. V.: The Circulation Time in Various Clinical Conditions Determined by the Use of Sodium Dehydrocholate, Am. Heart J. 8:746 (Aug.) 1933.

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6. Rosenblum and Levine.[5] Blumgart.[1]

7. Robinson, G. C.: The Measurement of the Cardiac Output in Man and Its Variations, J. A. M. A. 87:314 (July 31) 1926. Burwell, C. S.; Smith, W. C., and Neighbors, D. W.: The Output of the Heart in Thyrotoxicosis, Am. J. M. Sc. 178:157 (Aug.) 1929. Rabinowitch, I. M., and Bazin, Eleanor V.: The Output of the Heart per Beat in Hyperthyroidism, Arch. Int. Med. 38:566 (Nov.) 1926.

8. Blumgart, H. L.; Levine, S. A., and Berlin, D. D.: Congestive Heart Failure and Angina Pectoris: The Therapeutic Effect of Thyroidectomy on Patients Without Clinical or Pathologic Evidence of Thyroid Toxicity, Arch. Int. Med. 53:866 (June) 1933. Blumgart, H. L.; Riesman, J. E. F.; Davis, David, and Berlin, D. D.: Therapeutic Effect of Total Ablation of Normal Thyroid on Congestive Heart Failure and Angina Pectoris; III. Early Results in Various Types of Cardiovascular Disease and Coincident Pathologic States Without Clinical or Pathologic Evidence of Thyroid Toxicity, Arch. Int. Med. 53:165 (Aug.) 1933.

9. Tainter, M. L.; Stockton, A. B., and Cutting, W. C.: The Use of Dinitrophenol in Obesity and Related Conditions, J. A. M. A. 101:1472 (Nov. 4) 1933.

edema, occasionally even before the basal metabolic rate has reached a normal level.[10]

There has been a certain amount of evidence that the actions of thyroid substances and dinitrophenol are not similar except for their common ability to increase the metabolic rate. For instance, dinitrophenol does not afford symptomatic relief to patients suffering from hypothyroidism, even though the rate of the metabolism is brought up to normal.[11] Furthermore, when the metabolism of a patient is raised above normal with dinitrophenol, anxiety, palpitation and tremor (as seen in hyperthyroidism) do not occur,[11] nor is there any change in blood pressure, pulse rate or temperature when doses of the drug are kept within therapeutic limits.[12] Further, there is no correlation between the metabolic rate and the blood cholesterol concentration when dinitrophenol is used to elevate metabolism.[11] Also, Cutting and Tainter [13] have shown that the drug does not accelerate the development of tadpoles as does thyroxine. On the other hand, Hall and his associates [14] making use of the Fick principle in three experiments on anesthetized dogs, concluded that the minute volume output of the heart was increased following dinitrophenol administration. The figures were rather variable, and the doses of dinitrophenol were massive, being either toxic or lethal. Rabinowitch and Fowler [15] studied cardiac output during dinitrophenol administration in two cases and obtained inconclusive results.

We wished to determine in these experiments whether in patients whose metabolism had been heightened by therapeutic doses of dinitrophenol the speed of the blood flow was increased as it would have been with a similar rise in metabolic rate from hyperthyroidism or from the administration of thyroid substances. The cardiac output itself was not determined in these experiments. Blumgart and his co-workers, however, believe that the velocity of the blood flow is one of the most important factors that make up cardiac strain.[5] Ventricular rate and blood pressure changes are regarded by them as negligible,[16] and furthermore these have been shown not to be changed by dinitrophenol.[17]

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14. Hall, V. E.; Field, J.; Sakyun, M.; Cutting, W. C., and Tainter, M. L.: Carbohydrate Metabolism, Respiration and Circulation in Animals with Basal Metabolism Heightened by Dinitrophenol, Am. J. Physiol. 106: 432 (Nov.) 1933.

15. Rabinowitch, I. M., and Fowler, A. F.: Dinitrophenol, Canad. M. A. J. 30: 128 (Feb.) 1934.

16. Weinstein, A. A.; Davis, David; Berlin, D. D., and Blumgart, H. L.: The Mechanism of the Early Relief of Pain in Patients with Angina Pectoris and Congestive Failure after Total Ablation of the Thyroid Gland, Am. J. M. Sc. 187: 751 (June) 1934.

17. Freeman (The Effect of Dinitrophenol upon the Circulation Time, J. Pharmacol. & Exper. Therap. 51: 477 [Aug.] 1934) studied the relation of the velocity of the blood flow (as measured by the cyanide technic of Robb and Weiss [A Method for the Measurement of the Velocity of the Pulmonary and Peripheral Venous Blood Flow in Man, Am. Heart J. 8: 650 (June) 1933]) to oxygen consumption in schizophrenic patients who were given dinitrophenol. He concluded that there was a decrease in the circulation time when the oxygen consumption was raised. His data and results are difficult to interpret, however, since the "decreased" circulation times were actually considerably in excess (by 40.5 per cent) of the measurements which Robb and Weiss considered normal.

PROCEDURE

Observations on the blood velocity were made before, during and after the administration of dinitrophenol on patients who were receiving the drug for the treatment of obesity. The blood velocity was determined by the sodium dehydrocholate method,[5] which gives a normal circulatory time (arm to tongue) of from ten to sixteen seconds, the average being thirteen seconds. The blood velocity determinations were always done in duplicate. Sixteen-gage needles were used and, for each determination, 5 cc. of a 20 per cent solution of sodium dehydrocholate was injected rapidly into one of the veins of the cubital fossa. The time between the beginning of the injection and the appearance of a bitter taste in the mouth was recorded with a stop watch. These measurements were made under basal conditions immediately following the basal metabolism test, for which the patients had been prepared in the usual way and which were to be used to compare with the blood velocity rate. Notations were also made on the weight, the pulse rate and the electrocardiographic records before and during the period during which dinitrophenol was given.

RESULTS

Basal metabolic rates, followed by measurements of the blood velocity, were determined on twenty-five patients.[18] There were twenty-four women and one man. All the patients at the beginning of treatment were obese. Preliminary orientation experiments had indicated that the presence of obesity made no effect on the circulation time. The ages of the patients varied from 12 to 60 years, the average age being 37.5 years. The patients averaged 193¾ pounds (87.8 Kg.) in weight. The basal metabolic rates of these individuals varied from — 17 to + 16, their average being — 1 per cent (Aub-Du Bois Standard). The blood velocity in the patients in this group was within normal limits

Blood Velocity, Basal Metabolic Rate, Pulse Rate and Body Weight Before and After the Administration of Dinitrophenol

	Number of Patients	Average Blood Velocity, Seconds	Average Basal Metabolic Rate, per Cent of Normal	Average Pulse Rate, per Minute	Average Weight, Pounds
Before dinitrophenol	8	12.6	— 6	71	210½
After dinitrophenol	8	13.3	+21	70	198⅝

(between ten and sixteen seconds) in each case. The average blood velocity was 12.4 seconds. Pulse rates were also within normal limits in each case.

Of these twenty-five patients, all were given dinitrophenol, and eight were found who were satisfactory in every respect for contrast before and after dosage with the drug. An examination of the accompanying table will show that, except for the increased rate of metabolism and the reduction in weight, no appreciable change had occurred. The blood velocity (and the pulse rate), in other words, had remained within the established normal levels. Similarly, no differences were obtained in measurements of the blood pressure or in the form of the electrocardiographic curves before and during dosage with dinitrophenol.

18. Permission to study these patients was granted by Dr. Russel F. Rypins of the Metabolic Department, who was using them for another dinitrophenol investigation.

COMMENT

The lack of change in the measurements of the dynamics of the circulation in these experiments would indicate that no increased work was placed on the heart by therapeutic doses of dinitrophenol. Thus, the fact that the drug had been given with impunity to patients suffering from anginal failure can be understood. In addition, another difference is shown between the pharmacologic effects of thyroid substances and the effect of dinitrophenol; namely, that dinitrophenol causes no obligatory increased demand on the circulation in either the speed of the blood flow or the cardiac rate, as does medication with thyroid.

CONCLUSION

In eight cases studied when the metabolism was normal and again when it had been heightened by dinitrophenol, no discernible effects on the blood velocity or pulse rate were found.

Post and Scott streets.

Clinical Notes, Suggestions and New Instruments

STAPHYLOCOCCIC MENINGITIS WITH RECOVERY

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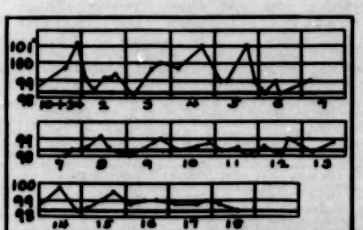
My purpose in this report is to present a case of Staphylococcus aureus meningitis in which a complete recovery was made during treatment with Staphylococcus aureus bacteriophage administered intraspinally. Conclusions should not be drawn from one case. A single successfully treated case, however, seems worthy of being added to the scant literature relative to this almost invariably fatal illness, as a series of treated staphylococcic meningitis cases is difficult to obtain. Schless[1] reported the first and only case in detail in the literature of a successfully treated Staphylococcus aureus meningitis with bacteriophage administered intraspinally. He used larger amounts of the bacteriophage than were used in the present case, but his results were very similar. Stout[2] reported treating successfully two cases of staphylococcic meningitis with bacteriophage, but no details of the case were given.

In this paper no attempt will be made to discuss bacteriophage therapy itself, as this has recently been thoroughly and effectively done by Eaton and Bayne-Jones.[3] Suffice it to say that its exact nature and mode of operation against infection in man is not yet definitely understood and that its results are often contradictory.

REPORT OF CASE

P. C., a boy, aged 8 years, seen in his home, Oct. 1, 1934, had come home from school four days before, stating that while playing on a swing he had struck his left knee on the ground and his back on an iron post. He had no fever that day, but his mother said that he complained of pain across the back, at the level of a small congenital cyst located at the second lumbar vertebra. The left knee was red, tender and slightly swollen and the cyst over the spine was slightly inflamed and swollen, the mother stated. The next morning he felt fine and had no complaints, but in the afternoon his temperature rose to 101 F. and remained elevated that night. He was seen by a local physician then, who reported that the patient had a rather severe throat infection. (The patient complained of sore throat.) The physician also noted some rigidity of the neck. The cyst, he stated, seemed to be infected and had a slight white discharge. Questioning the family revealed that, though the cyst (about the size of a pecan) had been present since birth, it had never given trouble, as at the present time, though for several months the child complained of intermittent pain across the lower part of the back. The physician also stated that the left knee seemed swollen and red and that the right parotid was swollen, tender and hot. The patient's gums were spongy and infected. The following day the patient felt better except for headache, and the temperature was only slightly over 100 in the afternoon. It was on the following day—the fifth since the beginning of the present illness—that I first saw him. He was complaining of severe headaches then. His temperature was 101 F. and he was very restless. On examination it was noted that there was marked rigidity of the neck; the head was retracted as far back as it was possible. The knee and parotid appeared normal. There were no petechiae, no splenic enlargement was present and the heart was normal. The cyst was tender and a little red in its center; there was no secretion at the time. The ears were normal. Immediate hospitalization was ordered.

The patient was admitted to Parkland Hospital, October 1. A spinal tap on admission revealed cloudy spinal fluid under greatly increasing pressure. A direct smear of the spinal fluid showed gram-positive diplococci. Several groups of four or five organisms in a group were found in a number of smears. This direct smear was made immediately after the spinal tap. The culture of this initial spinal fluid showed pure culture of Staphylococcus aureus. All laboratory work was done in the department of Dr. Sanders, pathologist to Parkland Hospital. The patient's progress and the spinal fluid changes in the hospital can best be followed in table 1.

Urinalysis was negative except for 2.2 per cent of sugar on two occasions. The initial blood count was: white blood cells, 15,300; red blood cells, 3,900,000; hemoglobin, 80 per cent; polymorphonuclear leukocytes, 76 per cent; large lymphocytes, 16 per cent; small lymphocytes, 8 per cent. The blood count on discharge was: white blood cells, 7,600; polymorphonuclear leukocytes, 58 per cent; small lymphocytes, 36 per cent; large lymphocytes, 4 per cent; eosinophils, 2 per cent. The temperature curve during hospitalization is shown in the accompanying chart.

Course of temperature, showing a return to normal of the temperature after the second administration of bacteriophage intraspinally.

Test tube experimentation showed specificity of the bacteriophage used for the infecting strain of organism (table 2).

The clinical condition of the patient on admission and for several days thereafter was bad. He was very restless and complained of severe headache. The head was retracted almost between the shoulders; the child was toxic and at times semiconscious and delirious. He did not vomit, however, and took fluids and nourishment well. His lips were covered with sordes and his mouth and gums were much infected. During his entire stay he was troubled by great abdominal distention. A blood culture was not made because at no time, after hospitalization, was there any evidence of a blood stream infection. Bilateral choking of the disks was observed throughout the illness, although at all times a free drainage of spinal fluid was obtained. No tap was bloody and at no time could any direct communica-

1. Schless, R. A.: Staphylococcus Aureus Meningitis: Treatment with Specific Bacteriophage, Am. J. Dis. Child. 44: 813-822 (Oct.) 1932.
2. Stout, R. F.: Bacteriophage Therapy, Texas State J. Med. 30: 205-209 (July) 1933.
3. Eaton, M. D., and Bayne-Jones, Stanhope: Bacteriophage Therapy, J. A. M. A. 103: 1769 (Dec. 8) 1934.

tion between cyst and subarachnoid space be demonstrated. There was no discharge from the cyst. The taps were all done in the intervertebral space above the cyst. No evidence of an epidural abscess was obtained. The spinal fluid pressure on discharge was 20 mm. of mercury.

Following his discharge, after eighteen days in the hospital, the patient remained in bed voluntarily for several weeks, complaining of weakness, headaches and inability to walk; also of pain in the flexor leg muscles on attempting to extend his legs completely. Both disks remained choked and the retinal vessels

infection of the meninges by direct extension or by way of the lymphatics from the infected cyst overlying the lumbar spine. The treatment consisted of copious spinal drainage by lumbar taps, approximately twice a day, all the spinal fluid that would drain off until the pressure was below normal, and the early administration intraspinally of Staphylococcus aureus bacteriophage, following which the head of the bed was lowered. Acriflavine hydrochloride, 1:4,000 (10 cc.), was also given intraspinally for two injections, but the first negative spinal fluid culture resulted after the administration of the

TABLE 1.—*Spinal Fluid Changes During Hospitalization*

	Spinal Fluid	Treatment	Smear	Culture
10/ 1/24	4,320 cells, 92% polymorphonuclear leukocytes; no blood in any of the spinal fluids	10 cc. antimeningococcus serum intraspinally	Gram-positive extracellular diplococci	Staphylococcus aureus
10/ 2/24	5,200 cells, 91% polymorphonuclear leukocytes	Antistreptococcus serum, 1 ampule in forenoon; smear and culture not yet identified; acriflavine (1:4,000) (10 cc.) intraspinally in forenoon	Many pus cells and occasional gram-positive cocci	Staphylococcus aureus
10/ 3/24	3,300 white cells, 74% polymorphonuclear leukocytes	Parke-Davis Staphylococcus aureus; bacteriophage, 1 ampule (5 cc.) intraspinally; acriflavine, 1:4,000 (10 cc.) in forenoon	Not done	Culture from afternoon specimen negative at end of 17 hours
10/ 4/24	Not done	Staphylococcus aureus; bacteriophage 1 ampule (5 cc.)	Not done	Staphylococcus aureus
10/ 5/24	770 white cells, 64% polymorphonuclear leukocytes	Bacteriophage, 1 ampule	Not done	Negative after 24 hours' incubation
10/ 6/24	1,400 cells, 69% polymorphonuclear leukocytes in forenoon; 880 cells, 80% polymorphonuclear leukocytes in afternoon	Bacteriophage, 1 ampule	Not done	Negative after 48 hours' incubation
10/ 7/24	225 cells, 80% polymorphonuclear leukocytes	None	Not done	Negative culture after 22 hours
10/ 8/24	230 cells, 82% polymorphonuclear leukocytes	None	Not done	Negative after 24 hours' incubation
10/ 9/24	160 cells, 82% polymorphonuclear leukocytes; negative globulin	None	Not done	Negative culture after 24 hours
10/10/24	99% white cells, 66% polymorphonuclear leukocytes	None	Not done	Negative culture after 24 hours
10/12/24	110 cells, 62% polymorphonuclear leukocytes	1 ampule bacteriophage subcutaneously	Not done	Negative culture after 24 hours
10/17/24	8 white cells per cm.; sugar, 30 mg.; negative globulin	None	Not done	Negative culture after 21 hours' incubation

full for one month. Fluids were limited and magnesium sulphate was given by mouth every other day. Neurologic examination revealed a weakness of the muscles of the left arm and leg, a markedly diminished left knee jerk, and a negative Babinski sign. Ankle jerks were present and equal. Nuchal rigidity gradually decreased in intensity. There were complaints at intervals of blurring and double vision. Improvement, however, was steady. Two spinal taps, done at home, were negative. At the present time, three months since the onset of his illness, the boy is bright and happy and is going to school. His gait is not quite normal, owing to some dragging of the left leg after much walking. There is no muscular contraction

TABLE 2.—*Almost Complete Lysis of the Organism in the Fifth Tube, Containing 2 cc. of the Bacteriophage*

First Tube Brain Broth-Staph. Aureus 12 Hour Old Culture Added	Second Tube Bacteriophage 0.5 Cc. Added	Third Tube Bacteriophage 1 Cc. Added	Fourth Tube Bacteriophage 2 Cc. Added	Fifth Tube Bacteriophage 5 Cc. Added
No decrease in turbidity	No decrease in turbidity	No decrease in turbidity	No decrease in turbidity	Complete clearing of turbidity after 24 hrs. incubation
Culture 12 Hours on Slant Agar Shows				
Fairly heavy growth	Fairly heavy growth	Fairly heavy growth	Fairly heavy growth	Very small growth

of the leg and the only positive finding is an absent left knee jerk. The disks are both completely normal and he has no headaches. The cyst is small and innocuous in appearance.

SUMMARY

In a case of Staphylococcus aureus meningitis, in which recovery was complete, the etiology is not certain but appears likely to have been part of a transient bacteremia from a focus in an acute throat infection. The other possibility is

second ampule of bacteriophage and remained negative throughout the duration of the illness. The temperature became normal along with the first negative spinal fluid culture and remained so. One ampule of 5 cc. of the bacteriophage was given daily for five successive days. Test tube experimentation proved that the bacteriophage used was specific for the strain of Staphylococcus aureus organism infecting the patient's meninges.

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CONTINUOUS SUBARACHNOID DRAINAGE FOR MENINGITIS BY MEANS OF A URETERAL CATHETER

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Repeated spinal drainage has proved advantageous in the treatment of meningitis. It occurred to me that the discomfort of repeated lumbar and cisternal punctures could be avoided by introducing a ureteral catheter, through a specially constructed spinal cannula, into the subarachnoid space and leaving the catheter in place for continuous drainage.

For several years, in the neurosurgical service at the Mayo Clinic, a ureteral catheter frequently has been introduced into one of the lateral ventricles, either to secure gradual decompression in cases of internal hydrocephalus or to control the increased intracranial pressure associated with hydrocephalus, of patients who had inoperable neoplasms of the brain, while they were undergoing roentgen therapy. The ureteral catheter is threaded through a flanged ventricular cannula, previously introduced into the ventricle, with its obturator, through a burr hole placed over the posterior horn of one of the lateral ventricles. The ventricles tolerate well the presence of a ureteral catheter, and postmortem examination of the brains of patients who have had continuous ventricular drainage by this method

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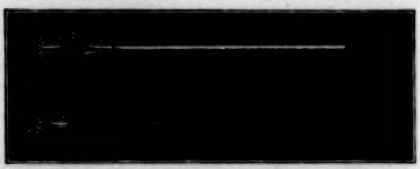
has not given evidence of ependymitis or other untoward development that could have been caused by the presence of the catheter within the ventricle. With this knowledge, I felt that it was safe to leave a ureteral catheter in the subarachnoid space for continuous drainage. The needle used is the length of an ordinary lumbar puncture needle, and its lumen is large enough to permit passage through it of a number 4 or 5 French ureteral catheter (fig. 1). The instrument maker designates the needle Barker's 13 gage. This needle can be introduced without difficulty into the lumbar subarachnoid space or posterior cistern (cisterna cerebellomedullaris). When the needle enters the subarachnoid space the obturator is withdrawn. When fluid is seen to escape and the surgeon is certain that the needle is properly placed, a number 5, flute-tipped ureteral catheter is passed through the needle until the tip of the catheter reaches the inner end of the needle. The length of catheter necessary for this can be determined previous to the puncture by measuring the catheter by means of the obturator. When the catheter has been introduced, it is held in position while the needle is withdrawn. It is unnecessary to suture or otherwise fix the catheter, for the tissues through which it passes are so thick and so closely applied to the walls of the catheter that it remains in position without additional fixation. The catheter, which is flexible, is not dislodged even if the patient turns over in bed and lies on his dressing. The catheter is cut off about 3 inches (7.5 cm.) from the surface of the skin, and a large, absorbent dressing is applied over its outer end to absorb the fluid as it drains outward. If the patient is quiet and cooperative, as usually he is not when meningitis is present, the catheter may be left full length and allowed to drain into a bottle at the side of the bed.



A number 5 French, flute-tipped ureteral catheter and special needle.

I have not had an opportunity to try this procedure in a sufficiently large group of cases to give statistics to prove its efficacy, but in the few cases in which it was used it gave gratifying results, and I expect to use it more in the future.

REPORT OF CASES ILLUSTRATING APPLICATION OF URETERAL CATHETER

CASE 1.—*Postoperative cerebellar tumor; continuous drainage used to prevent hydrocephalus and necessity of repeated punctures.* A white woman, in February 1931, underwent a subtotal resection of a cystic astrocytoma of the left cerebellar lobe. The patient returned in August 1934, at the age of 24, for a second operation, at which time complete resection of an extensive left cerebellar tumor was carried out. Following the operation the patient was febrile, and the musculocutaneous flap began to bulge unduly. On the fifth postoperative day, because of the evidence of excess fluid and increased intracranial pressure, a flute-tipped ureteral catheter was inserted through the needle into the posterior cistern. Cerebrospinal fluid drained through the catheter until the eleventh postoperative day, when the catheter was removed. There was no further bulging of the flap. The wound healed by primary union. The patient was dismissed seventeen days following radical removal of the cerebellar tumor. Her condition on dismissal was satisfactory. She did not have headaches.

CASE 2.—*Questionable meningitis (negative culture); continuous lumbar drainage.* A white man, aged 38, admitted to the hospital in August 1934, stated that he had received two gunshot wounds forty-eight hours previously. One bullet had lodged in the soft tissues of the neck, and the other had traversed the spinal canal at the level of the tenth thoracic vertebra, resulting in a complete transverse lesion of the spinal cord. Two days after the patient's admission, he began to complain of headache and stiff neck and of a sense of constriction about the chest. The temperature rose from normal to 100 F.; he was perspiring profusely and appeared toxemic. Clinically, meningitis had developed. In addition to the stiff neck, fever and evidence of toxemia, examination of spinal fluid disclosed 6,600 polymorphonuclear leukocytes, 80 large lymphocytes and 40 small lymphocytes for each cubic millimeter of fluid. The fluid was grossly turbid. Smears of this fluid did not reveal any organisms, and cultures were reported later as "negative."

Because of the clinical evidence of meningitis and the fact that the patient appeared worse the next day, continuous lumbar subarachnoid drainage was instituted. An olive-tipped ureteral catheter, which had but one opening not placed at the extreme end of the catheter, was used, because a flute-tipped catheter (having three openings, with one at the extreme tip) was not immediately available. The patient was soon much more comfortable. The following day his neck was less rigid, his headache had disappeared, and the sense of constriction about the chest of which he had complained was gone. After forty-eight hours of continuous drainage, the ureteral catheter was removed. The patient had shown marked improvement clinically during these two days. Spinal puncture, performed the next day to obtain a specimen of fluid for examination, revealed a very slightly yellowish fluid, which on microscopic examination contained 8 polymorphonuclear leukocytes, 4 large lymphocytes, and 5 small lymphocytes for each cubic millimeter of fluid. A few erythrocytes also were present.

The patient had no further symptoms or signs of meningitis, and the course, from then on, was that of an uncomplicated transverse lesion of the spinal cord. The patient remained under our care for twenty-five days, after which he was transferred to his hospital at home for further care. At the time of dismissal his general condition was satisfactory, but he had not regained any power or sensation, which had been lost from the time of the gunshot injury.

CASE 3.—*Influenzal meningitis.* A white boy, aged 3½ years, admitted to the hospital, July 31, 1934, was suspected of having meningitis.

Lumbar puncture revealed cloudy cerebrospinal fluid and there were 2,503 polymorphonuclear leukocytes for each cubic millimeter of fluid. Gram stain of smears from the fluid disclosed pus cells but no organisms. Cultures of the fluid revealed the presence of Haemophilus influenzae. Blood culture was reported as containing small, gram-negative bacilli, probably Haemophilus influenzae. Daily lumbar drainage was performed for five days, but this procedure had to be discontinued then, for fluid could not be obtained when a spinal puncture needle was introduced into the lumbar subarachnoid space. A ureteral catheter was placed in the posterior cistern (cisterna cerebellomedullaris) according to the technic described for continuous drainage. At the time of institution of continuous drainage, the patient's temperature was 105 F.; he was stuporous and entirely uncooperative. The next day he could not move the right upper extremity, and there were "twitchings" of the right side of the face and of the right upper and lower extremities. These manifestations suggested the possibility of a left cerebral abscess, particularly because he gave a history of an old infection of the left ear. It also suggested a localized lesion of the left cerebral cortex associated with the meningitis. The catheter in the cistern was draining freely. Two days later, clinically, the child was much better. He was conscious and alert and carried on a satisfactory conversation with the examiner. The temperature had dropped to normal and the pulse to 90. This improvement was only temporary, for forty-eight hours later he began to fail rapidly and he died on the twelfth day following admission, which was the seventh day following institution of continuous cisternal drainage.

It is questionable in this case whether continuous drainage was of value. However, there was temporary improvement following its adoption and the case proves the practicality of prolonged continuous drainage by means of a catheter placed in the posterior cistern.

The postmortem examination was interesting. The ureteral catheter was patent and lay in the cistern without any local reaction being present. Suppuration in the meninges was minimal and much less than one would ordinarily expect in a

fatal case of meningitis that had lasted for more than twelve days. There was no hydrocephalus, nor was there any cortical or subcortical suppuration (abscess).

CONCLUSION

Continuous subarachnoid drainage can be effected without the necessity of a formal operative procedure and without the danger of the presence of a rigid instrument (needle) left in the back. A ureteral catheter introduced into the subarachnoid space will not cause irritation, and it will obviate the necessity for daily spinal puncture.

Special Article

GLANDULAR PHYSIOLOGY AND THERAPY

ESTROGENIC HORMONES AND CARCINOGENESIS

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NOTE.—*This article and the articles in the previous issues of* THE JOURNAL *are part of a series published under the auspices of the Council on Pharmacy and Chemistry. Other articles will appear in succeeding issues. When completed, the series will be published in book form.*—ED.

Three lines of investigation, conducted more or less independently of one another for a number of years, have led recently to the conclusion that a remarkably close relation in chemical constitution as well as in biologic effects exists between estrogenic hormones and certain hydrocarbons that occur in tar and are able to induce cancer. The facts that resulted directly in the formulation of this problem came in part from investigations of Kennaway, Cook and Dodds and their collaborators concerning the chemical constitution of the carcinogenic constituents of tar and the ability of these and related substances to induce estrus and in part from another series of experiments in which it has been shown that estrogenic hormones are factors in the development of certain kinds of cancer. There are then (*a*) first a series of investigations which, beginning with the finding that tar when applied to the skin over a long period of time may induce the development of cancer, led to the isolation of certain substances from tar having the ability themselves to induce cancer formation and to the synthetic preparation of these and related compounds; (*b*) a second series, beginning with the analysis of the mechanism underlying the sexual cycle, which proceeded to the study of the place of origin, the function and the chemical constitution of the hormones that dominate the various phases of the cycle, and (*c*) a third series of investigations which concerns the significance of ovarian hormones in the development of mammary cancer in mice.

I shall now discuss briefly these three lines of investigations and the main conclusions to which they lead.

FIRST SERIES OF INVESTIGATIONS

The first series of experiments originated with the discovery by Yamagiwa and Ichikawa [1] in 1915 that long continued applications of tar to the ear skin of rabbits may initiate cancerous changes in the tissue exposed to the action of this substance. Subsequently, Tsutsui [2] showed that in mice epidermal cancer can be produced in a much larger percentage of cases than in rabbits and that therefore mice are the more favorable species for testing the carcinogenic power of various substances related to tar. It was next found by Bloch and Dreifuss [3] that the compounds present in tar and responsible for the production of cancer are neutral, nitrogen free substances possessing a high boiling point. This led to attempts to isolate the active principles involved. Following Bierich, who believed pyrrole to be active, Kennaway [4] showed that, if isoprene is exposed to a high temperature in an atmosphere of hydrogen, a mixture of compounds, chiefly aromatic in nature, develops, which has marked carcinogenic power. Carcinogenic substances were likewise produced in a similar way by exposing acetylene and also yeast and human skin to very high temperatures. These investigations suggested that the active substances in this case might be hydrocarbons. Continuing these experiments, Cook, Hewett and Hieger [5] obtained carcinogenic substances in a pure state; furthermore, Cook and his associates [6] prepared these substances synthetically and showed that some of them were chemically identical with others extracted from tar. It could also be demonstrated that it is the tricyclic phenanthrene ring system which is common to all these carcinogenic hydrocarbons and that a series of compounds related to 1:2 benzanthracene, which itself is inactive, possesses especially marked carcinogenic properties.

The principal carcinogenic hydrocarbons found so far are: (1) 1:2 benzpyrene, which has been isolated from pitch and also synthesized; this is perhaps the most active substance; 4:5 benzpyrene, on the other hand, is inactive. (2) 5:6 cyclopenteno-1:2 benzanthracene, which also is very active. Tumors have been obtained with this substance in rats as well as in mice and some of these tumors have metastasized. (3) 1:2:5:6 dibenzanthracene, which is somewhat less effective in initiating squamous cell carcinomas in mice than the first two substances; injected subcutaneously in mice and rats it caused the production of sarcomas. (4) 9:10 dihydroxy-9:10 di-n-propyl-9:10 dihydro-1:2:5:6 dibenzanthracene. (5) 6 isopropyl-1:2-benzanthracene. (6) Various other derivatives of 1:2:5:6 dibenzanthracene, which are active but less so than 1:2:5:6 dibenzanthracene itself. (7) Chrysene, which is a substance that may give rise to connective tissue tumors when injected into rats and also into mice; but investigators differ somewhat as to its power

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2. Tsutsui, H.: Ueber das künstlich erzeugte Cancroid bei der Maus, Gann **12**: 17 (July) 1918.

3. Bloch, Bruno, and Dreifuss, W.: Ueber die experimentelle Erzeugung von Carcinomen mit Lymphdrüsen- und Lungenmetastasen durch Teerbestandteile, Schweiz. med. Wchnschr. **2**: 1033 (Nov. 10) 1921.

4. Kennaway, E. L.: The Formation of a Cancer-Producing Substance from Isoprene (2-Methylbutadiene), J. Path. & Bact. **27**: 233 (July) 1924; Experiments on Cancer-Producing Substances, Brit. M. J. **2**: 1 (July 4) 1925; Further Experiments on Cancer-Producing Substances, Biochem. J. **24**: 497, 1930.

5. Cook, J. W.; Hewett, C. L., and Hieger, I.: The Isolation of a Cancer-Producing Hydrocarbon from Coal Tar: I, II and III, J. Chem. Soc. part 1: 395, 1933.

6. (*a*) Cook, J. W.: Aromatic Hydrocarbons: VII. 5:6 Cyclopenteno-1:2 Benzanthracene, a Cancer Producing Hydrocarbon, J. Chem. Soc. part 2: 2539, 1931. (*b*) Cook, J. W.; Hieger, I.; Kennaway, E. L., and Mayneord, W. V.: The Production of Cancer by Pure Hydrocarbons: I, Proc. Roy. Soc., ser. B **111**: 455 (Oct. 1) 1932. (*c*) Barry, G., and Cook, J. W.: A Comparison of the Action of Some Polycyclic Aromatic Hydrocarbons in Producing Tumors of Connective Tissue, Am. J. Cancer **20**: 58 (Jan.) 1934. (*d*) Barry, G., and Cook, J. W.: Discussion on Experimental Production of Malignant Tumors, Proc. Roy. Soc., ser. B **112**: 268 (Aug.) 1933.

to produce epithelial tumors in mice. Bottomley and Twort[7] have obtained some positive results with this substance. The degree of activity of various compounds, however, depends not only on their chemical constitution but also on the medium in which they are dissolved; in the case of chrysene, Twort showed that if it is dissolved in oleic acid the latter may act as a sensitizer and strengthen the potency of this substance. In general it seems, then, that a molecular structure consisting of rings attached to the 1:2 and 5:6 position of the anthracene ring system tends to induce a marked carcinogenic activity.

As far as the etiology of cancer is concerned, this series of investigations indicates that tar and the carcinogenic substances it contains are much more specific in their action than had been previously assumed. Apparently they may induce cancer formation without first causing local irritation. They operate evidently as stimulants of growth. On the other hand, these substances are not selective as regards the substratum in which they act; they may produce a cancerous transformation of epithelial as well as of connective tissue cells. The result depends on the kind of tissue with which they come into direct contact. Furthermore, it seems that they produce cancer not directly, as the agent of Rous sarcoma does, but indirectly. They effect, step by step, changes in the cells on which they act, and these changes ultimately eventuate in the formation of cancer from originally normal cells. In this process these carcinogenic compounds differ only quantitatively from a number of other substances or conditions that induce cancer formation in a similar manner, such as arsenic, aniline substances given off by certain parasites and long continued regenerative processes caused by chronic irritation.

These investigations, in defining the chemical constitution of the carcinogenic agents present in tar and that of related synthetically produced compounds, have shown the chemical relationship of such substances to a whole series of other biologically important substances, such as cholesterol, bile acids, ergosterol and vitamin D; their relationship to the testis hormone and above all to the estrus producing hormones that are derived from the ovarian follicles and are present besides in the urine of pregnant women and of pregnant mares has also been demonstrated. However, to this class of related compounds belong also substances which, as far as their biologic effects are concerned, are as far removed from the carcinogenic and estrogenic principles as the glucosidic heart stimulants strophanthin and digitoxin, and certain alkaloids (morphine, codeine, colchicine). All these substances as well as the carcinogenic agents possess the phenanthrene ring; they differ from one another in the degree of hydrogenation and in the character of polar groups and of side chains. Because of these relationships between carcinogenic substances and the sterols, which naturally occur in the animal organism, Kennaway and Cook suggested that carcinogenic substances, similar to those obtained from tar, such as certain derivatives of 1:2 benzanthracene, might under some conditions arise in the body from sterols normally present in cells as the result of those local interferences that lead to the development of cancer.

7. Bottomley, A. C., and Twort, C. C.: The Carcinogenicity of Chrysene and Oleic Acid, Am. J. Cancer 21:781 (Aug.) 1934.

SECOND SERIES

Among the various agents mentioned, it is mainly the estrogenic hormones and their relation to the carcinogenic substances that seemed of special interest and gave rise to a series of investigations in which, on the one hand, the estrogenic potency of carcinogenic hydrocarbons and, on the other hand, the possible carcinogenic activity of estrogenic hormones were studied. During the last thirty years a long continued series of experimental investigations has led to the conclusion that in mammals the sexual cycle of the female organism depends on the action of two hormones or of two sets of hormones; namely (1) the follicular hormone, which dominates the first, the follicular phase of the sexual cycle directly preceding and following ovulation; this causes an active proliferation in the vagina and a more restricted growth in the mucosa of the uterus. (2) The luteal hormone, which dominates the second, the luteal phase of the cycle; this makes possible the placenta formation in the pregnant animal and also induces the predecidual changes in the uterine mucosa, which take place previous to the embedding of the egg and which represent a part process in the placenta formation.[8] Early extirpation of the corpora lutea prevents these changes.[9] Moreover, the corpus luteum hormone prevents ovulation[10] and insures the uninterrupted continuation of pregnancy. Of these two hormones or sets of hormones, the follicular hormone was alone at first considered by those who had studied the carcinogenic hydrocarbons of tar and related compounds. This was largely due to the fact that, owing to the investigations especially of Doisy[11] and Butenandt,[12] the chemical constitution of extrogenic hormones from the urine of pregnancy had been cleared up; as in the case of the carcinogenic hydrocarbons, so also in the case of theelin and the related estrogenic substances a close relationship to the sterols had been established. The suggestion was made therefore that estrogenic substances might be derived in the body from sterols. Theelin had been found to be a tetracyclic compound which contains one aromatic ring, and, according to Girard,[13] in the urine of pregnant mares

8. Loeb, Leo: The Correlation Between the Cyclic Changes in the Uterus and the Ovaries in the Guinea-Pig, Biol. Bull. 27:1 (July) 1914; The Relation of the Ovary to the Uterus and Mammary Gland from the Experimental Aspect, Tr. Am. Gynec. Soc. 40:172, 1917; Surg., Gynec. & Obst. 30:200 (Supp.) 1917; Ueber die experimentelle Erzeugung von Knoten von Deciduombau in dem Uterus des Meerschweinchens nach stattgefundener Copulation, Zentralbl. f. allg. Path. u. path. Anat. 28:543 (July 31) 1917; The Production of Deciduomata and the Relation Between the Ovaries and the Formation of the Decidua, J. A. M. A. 69:1897 (June 6) 1917; The Experimental Production of the Maternal Placenta and the Function of the Corpus Luteum, ibid. 68:1473 (Oct. 30) 1909; Beiträge zur Analyse des Geschlechtsleben, Arch. f. Entwicklungsmech. 27:189 (Jan. 12) 1909, 31:456 (Feb. 14) 1911, 33:67 (May 16) 1911.

9. Loeb, Leo.: Ueber die hämatische Erregung der Decidua und über die Bedeutung der Ovarien für die Deciduabildung, Zentralbl. f. Physiol. 22:692 (Oct. 31) 1908; Ueber die Bedeutung des Corpus luteum, ibid. 23:72 (May 1) 1909; Weitere Untersuchungen über die hämatische Erregung der embryonalen Placenta und über die Methoden der sexuellen Zyklen des weiblichen Säugetierorganismus, ibid. 24:203 (June 11) 1910; The Function of the Corpus Luteum, the Experimental Production of the Maternal Placenta and the Mechanism of the Sexual Cycle in the Female Organism, M. Rec. 77:1093 (June 25) 1910; The Mechanism of the Sexual Cycle with Special Reference to the Corpus Luteum, Am. J. Anat. 22:305 (Nov.) 1923.

10. Loeb, Leo: The Cyclic Changes in the Ovary of the Guinea-Pig, J. Morphol. 29:37 (March) 1911; Ueber die Bedeutung des Corpus luteum für die Periodizität der sexuellen Zyklen beim weiblichen Säugetierorganismus, Deutsche med. Wchnschr. 37:17 (Jan. 5) 1911.

11. Doisy, E. A., and Thayer, S. A.: The Preparation of Theelol, J. Biol. Chem. 91:641 (May) 1931. Thayer, S. A., Levin, L., and Doisy, E. A.: Characterization of Theelol, ibid. 93:635 (May) 1931; Theelin, Some Physical and Chemical Properties, ibid. 91:791 (May) 1931. Veler, C. D.; Thayer, S. A., and Doisy, E. A.: The Preparation of the Crystalline Follicular Ovarian Hormone, Theelin, ibid. 97:337 (June) 1932. Doisy, E. A.; Veler, C. D., and Thayer, S. A.: The Preparation of the Crystalline Ovarian Hormone from the Urine of Pregnant Women, ibid. 98:499 (April) 1930.

12. Butenandt, A.: Zur Biologie und Chemie der Sexualhormone, Naturwissensch. 23:69 (Jan. 27) 1935.

13. Girard, A.: La chimie des hormones sexuelles, Bull. Soc. chim. biol. 15:542 (May) 1933.

there occurs another estrogenic substance which contains two aromatic rings (equilenin). The interest in the relationship between estrogenic and carcinogenic substances was further stimulated by the discovery of Aschheim and Hohlweg [14] that, in extracts of bituminous material (coal, mineral oil) substances are present that have a definite estrogenic potency. It was obvious that this might be due to compounds related to those which may function as carcinogenic agents. Furthermore, it was pointed out that estrogenic substances can induce active cell proliferation, and lastly it has actually been proved that under certain conditions estrogenic substances may induce or accelerate cancer formation, but the latter observations will be discussed subsequently. Quite recently, Butenandt and Westphal, Allen and Wintersteiner,[15] and Fels, Slotta and Ruschig [16] have made it probable that the luteal hormones have a similar chemical constitution to the estrogenic hormones; apparently these are unsaturated phenanthrene derivatives possessing two ketone groups, and it appears therefore likely that the facts stated as to chemical relation between carcinogenic compounds and estrogenic hormones apply in addition to the luteal hormones.

Proceeding with these investigations, Cook and Dodds and their associates [17] examined a number of hydrocarbons (in which previously the carcinogenic potency had been analyzed) as to their ability to induce estrus in castrated mice and rats and also to change the plumage in capons in the direction toward female characteristics.

The following are the principal substances that they found estrogenic: (1) 1-keto 1:2:3:4 tetrahydrophenanthrene. This was the first compound of known chemical constitution that was shown to be estrogenic, although to a much less extent than theelin. (2) 1:2:5:6 dibenz-9:10-di-n butyl anthraquinol. (3) 7 methoxy-1:2-cyclopenteno phenanthrene; this is identical with the dehydrogenation product of equilenin. (4) The most efficient of these estrogenic substances was 9:10-dihydroxy-9:10 dipropyl-9:10 dihydro-1:2:5:6 dibenzanthracene, a derivative of dibenzanthracene that itself is not estrogenic but becomes so when hydrogenated and supplied with hydroxyl groups. The butyl preparation approaches the propyl derivative in potency; but if other groups are substituted for propyl or butyl, the potency decreases very much or disappears altogether.

Of particular interest is the fact that the two most active carcinogenic substances, (5) 1:2 benzpyrene and (6) 5:6 cyclopenteno-1:2 benzanthracene, are also estrogenic, although their potency is much weaker than that of the dibenzanthracene derivatives mentioned under 4. Likewise (7) dimethylphenanthrene is weakly active. On the other hand, 1:2:5:6 dibenzanthracene, which is actively carcinogenic, is devoid of estrogenic potency. Also a number of other phenanthrene derivatives are nonestrogenic. While the saturated cholesterol itself is nonestrogenic, some related, nonsaturated substances, such as neo-ergosterol, vitamin D and ergosterol, are estrogenic.

It seems, then, that the presence of one or two aromatic rings and of an oxygen containing group in the phenanthrene ring is necessary for a compound to acquire a high estrogenic potency; but even in substances not possessing the oxygen containing group, estrogenic activity may be observed, although it is low under these conditions.

In addition it has now been established that even the phenanthrene ring is not necessary for the manifestation of estrogenic potency; 1-keto-1:2:9:4:5:6:7:8 octahydro-anthracene also shows such activity; moreover, a low estrogenic potency is shown even by certain highly unsaturated fatty acids.

If these two series of compounds are compared with each other, the first one, representing the substances possessing carcinogenic activity, and the second, consisting of estrogenic compounds, one may conclude that (1) there are substances which are both carcinogenic and estrogenic; (2) there are carcinogenic substances which are not estrogenic; (3) there are estrogenic substances which are not carcinogenic, and (4) even in cases in which compounds are both estrogenic and carcinogenic, there is no parallelism between the strength of these two activities. The substances most potent carcinogenically are not the most potent estrogenic compounds. A special effort has been made recently by Burrows [18] and Kennaway to demonstrate a possible carcinogenic action of theelin when applied to the skin of mice over a long period of time, a method that has been found effective with the carcinogenic hydrocarbons of tar. However, their essential observations, under these conditions, consisted in certain changes in the vagina, uterus and part of the prostate, which might be expected if some of the theelin had been absorbed through the skin or taken in orally by the animals and thus had exerted the usual effects of these hormones on the sex organs. No tumor was produced in this way.

It seems, then, that the relations between the estrogenic and the carcinogenic potencies of certain substances do not differ essentially from the relations between the estrogenic and the rickets preventing activities of other, also chemically related, compounds; these two functions may or may not be exerted by the same substance but, if they are combined, the association is apparently a more or less fortuitous one. Presumably the chemical groups responsible for these various activities are not the same, although the possibility must be considered that a very indirect connection between them may exist so far as certain peculiarities of chemical constitution of the compounds under discussion might favor their marked potency in different, biologically unrelated directions.

THIRD SERIES

While, as stated, theelin does not have a carcinogenic effect if applied in the manner which, when tar and certain hydrocarbons are used, leads to tumor formation in mice, in another way it has been possible to prove that ovarian hormones, in interaction with hereditary factors, are responsible in mice for the origin of

14. Aschheim, Selmar, and Hohlweg, W.: Ueber das Vorkommen östrogener Wirkstoffe in Bitumen, Deutsche med. Wchnschr. **59**:12 (Jan. 6) 1933.

15. Allen, W. M., and Wintersteiner, O.: Crystalline Progestin, Science **80**:190 (Aug. 24) 1934.

16. Fels, K.; Slotta, K. H., und Ruschig, H.: Die Reindarstellung der Hormone aus dem Corpus luteum, Klin. Wchnschr. **13**:1207 (Aug. 25) 1934.

17. Cook, J. W.; Dodds, E. C., and Greenwood, A. W.: Sex Change in the Plumage of Brown Leghorn Capons Following the Injection of Certain Synthetic Estrus-Producing Compounds, Proc. Roy. Soc., ser. B **114**:286 (Jan.) 1934. Cook, J. W.; Dodds, E. E.; Hewett, C. L., and Lawson, W.: The Estrogenic Activity of Some Condensed Ring Compounds in Relation to their Other Biological Activities, Proc. Roy. Soc., ser. B **114**:272 (Jan.) 1934. Cook, J. W., and Dodds, E. C.: Sex Hormones and Cancer Producing Compounds, Nature **131**:205 (Feb. 11) 1933. Dodds, E. C.: The Hormones and Their Chemical Relations, Lancet **1**:931 (May 5) 1934.

18. Burrows, H.: On Some Effects Produced by Applying Estrin to the Skin of Mice, Am. J. Cancer **30**:48 (Jan.) 1934.

mammary cancer, the most frequent tumor in this species. First, it has been shown[19] in breeding experiments (1907-1919) that, in different strains and families kept under the same environmental conditions, the cancer rate varies between almost 100 per cent on the one hand and zero on the other, and that in each strain or family this peculiar cancer rate remains approximately constant in successive generations and is a genetically determined condition. It has furthermore been shown that not only the cancer incidence but also the cancer age is genetically determined and characteristic of each strain. Only on the basis of these data was it possible to analyze the effect of ovarian hormones on the incidence of mammary cancer. If in mice belonging to strains with a known high incidence of cancer the ovaries are extirpated at the age of from 3 to 4 months, the cancer incidence falls to zero in the majority of strains or families and to a ratio approaching zero in others.[20] The subsequent experiments of Cori[21] have proved that if castration is carried out at a still earlier period—two months—the cancer rate is definitely reduced to zero. But when the ovaries were extirpated at successively later periods of life the cancer rate rose correspondingly step by step, until, if the castration took place at the age of from 8 to 10 months the rate became about as high as it was in noncastrated mice. Not only did ovariectomy cause a marked reduction in the incidence of cancer but it also increased the average age at which cancer appeared. Prevention of breeding as a rule also reduced the cancer rate, but to a much less marked degree than ovariectomy. These data were interpreted as indicating that ovarian hormones, acting on the mammary gland in cooperation with hereditary factors, caused the transformation of the normal gland tissue into cancerous tissue. The hormones functioned under these conditions as a stimulant comparable to the action of tar in epidermal and other cancers. The relation between the hereditary (H) and stimulating (S) factors in the production of cancer (C) can be expressed by the equation $H + S$ (or $H \times S) = C$.[22]

In further experiments the attempt was made to induce cancer formation in animals in which it does not occur under normal conditions, by supplying ovarian hormones. Thus the ovaries of females belonging to the same strains were transplanted into spayed male mice belonging to high cancer rate strains.[20b] But cancer did not develop in the males under these conditions, presumably because the ovarian follicles did not function sufficiently after transplantation. Cori likewise obtained negative results.[21] However, subsequently, Murray,[23] experimenting on a much larger scale, obtained a small percentage of positive results.

Of the ovarian hormones that could be held responsible for this carcinogenic effect there were to be considered (*a*) the follicular hormone that is active during the follicular phase of the sexual cycle and (*b*) the luteal hormone that is active during the luteal phase. The principal action that these two hormones exert on uterus and vagina has already been discussed. As to their influence on the mammary gland, the organ with which I am here mainly concerned, it could be shown that the follicular hormone causes proliferation in guinea-pigs, rats and mice.[24] In rabbits, Ancel and Bouin[25] attributed the growth of this gland to the luteal hormone; however, it was demonstrated that in guinea-pigs a proliferation of the mammary gland does not take place during the luteal phase of the cycle.[24] On the basis of these data, I considered primarily the follicular hormone as the carcinogenic agent, but there were also indications that, in addition, the luteal hormone might be of significance.[26] Cori then attempted to produce cancer in female mice belonging to a high cancer strain and castrated at an early period of life, by the injection of estrogenic hormone at regular intervals over a long period of time. These experiments as well as those continued by him in cooperation with me gave negative results, apparently owing to the use of insufficient doses of this preparation. However, quite recently, Lacassagne[27] succeeded by this method but with the use of much larger doses of estrogenic substance (in the form of a benzoate)[27a] in producing mammary cancer in male mice, in which normally it would not have appeared. Thus it is possible also to increase the cancer rate through administration of a derivative of an estrogenic hormone. Lacassagne furthermore found that injections of estrogenic substance eventually led to cancer formation not only in high tumor rate but also in low tumor rate strains,[28] although in the latter this effect was accomplished with much greater difficulty.

As stated, under natural conditions the development of mammary cancer in mice depends on the interaction between hereditary factors and an ovarian hormone, acting as a stimulant of tissue growth. The problem arose as to the character of these hereditary conditions. Apparently they act as sensitizers of the tissues, render-

19. Loeb, Leo: Further Observations on the Endemic Occurrence of Carcinoma and on the Inoculability of Tumors, Univ. Pennsylvania M. Bull. **20**:2 (March-April) 1907. Ueber einen Kontakt-Krebsmetastasen-tumor bei einer weissen Maus, Centralbl. f. allg. Path. u. path. Anat. **22**:993 (Nov. 30) 1911. Lathrop, A. E. C., and Loeb, Leo: The Incidence of Cancer in Various Strains of Mice, Proc. Soc. Exper. Biol. & Med. **11**:34, 1913-1914; The Influence of Pregnancies on the Incidence of Cancer in Mice, Proc. Soc. Exper. Biol. & Med. **11**:38, 1913-1914; Further Investigations on the Origin of Tumors in Mice: I. Tumor Incidence and Tumor Age in Various Strains of Mice, J. Exper. Med. **23**:646 (Nov.) 1915; II. Tumor Incidence and Tumor Age in Hybrids, J. Exper. Med. **23**:713 (Dec.) 1915. Loeb, Leo: Inheritance of Cancer in Mice, Am. Naturalist **55**:510 (Nov.-Dec.) 1921. Slye, Maude: The Inheritability of Spontaneous Tumors of Specific Organs and of Specific Types in Mice, J. Cancer Research **1**:479 (Oct.) 1916. Slye, Maude; Holmes, H. F., and Wells, H. G.: Comparative Pathology of Cancer of the Stomach, with Particular Reference to the Primary Spontaneous Malignant Tumors of the Alimentary Canal in Mice, J. Cancer Research **2**:401 (July) 1917, and numerous subsequent papers of Maude Slye.

20. (*a*) Lathrop, A. E. C., and Loeb, Leo: Further Investigations on the Origin of Tumors in Mice: III. On the Part Played by Internal Secretion in the Spontaneous Development of Tumors, J. Cancer Research **1**:1 (Jan.) 1916. (*b*) Loeb, Leo: Further Investigations on the Origin of Tumors in Mice: VI. Internal Secretions as a Factor in the Origin of Tumors, J. M. Research **40**:477 (Sept.) 1919.

21. Cori, C. F.: The Influence of Ovariectomy on the Spontaneous Occurrence of Mammary Carcinomas in Mice, J. Exper. Med. **45**:983 (June) 1927.

22. Loeb, Leo: Quantitative Relations Between the Factors Causing Cancer and the Rapidity and Frequency of the Resulting Cancerous Transformation, J. Cancer Research **9**:274 (July) 1924.

23. Murray, W. S.: Ovarian Secretion and Tumor Incidence, Science **66**:600 (Dec. 16) 1927; A Note on Ovarian Secretion and Cancer, ibid. **67**:396 (April 13) 1928.

24. Loeb, Leo, and Hesselberg, C.: The Cyclic Changes in the Mammary Gland Under Normal and Pathological Conditions: I. The Changes in the Nonpregnant Guinea-Pig, J. Exper. Med. **28**:285 (Feb.) 1917; II. The Changes in the Pregnant Guinea-Pig, the Effect of Lutein Injections, and the Correlation Between the Cycle of the Uterus and Ovaries and the Cycle of the Mammary Gland, J. Exper. Med. **25**:305 (Feb.) 1917.

25. Ancel, P., and Bouin, P.: Recherches sur les fonctions du corps jaune gestatif: II. Sur le déterminisme du développement de la glande mammaire au cours de la gestation, J. de physiol. et de path. gén. **13**:31 (Jan. 15) 1911.

26. Loeb, Leo: Heredity and Internal Secretion in the Etiology of Cancer, Report of the International Conference on Cancer, London, 1928, p. 48.

27. Lacassagne, A.: Apparition de cancers de la mamelle chez la souris mâle, soumise à des injections de folliculine, Compt. rend. Acad. d. sc. **195**:630 (Oct. 10) 1932.

27a. Lacassagne[27] employed a preparation called "folliculine benzoate." It is impossible to judge from the literature whether this is the benzoate of betahydroxyestrin (theelin) or whether it is identical with hydroxyestrin benzoate, marketed in this country under the name "Progynon B." In his subsequent publication[28] Lacassagne designates the product employed simply as "folliculine."—Ed.

28. Lacassagne, A.: Sur la pathogénie de l'adénocarcinome mammaire de la souris, Compt. rend. Soc. de. biol. **115**:937, 1934.

ing them more receptive to the effects of the stimulants. We considered it therefore possible that in cancer-rich strains there might be a stronger response of the sex organs to the estrogenic hormones, leading to modifications of the sexual cycle. However, preliminary experiments in which we [29] attempted to demonstrate a constant difference in the sexual cycle between high and low tumor rate strains so far proved negative; but Lacassagne has noted such differences in his recent paper.[28]

It may now be asked what bearing these investigations have on the interpretation of the first two series, in which the close chemical relationship between the carcinogenic substances present in tar and estrogenic hormones has been demonstrated and in which it has furthermore been shown that certain of these carcinogenic substances are also estrogenic. It may be regarded as established that estrogenic substances, as a rule acting in association with hereditary factors, may be strongly carcinogenic; but such carcinogenic action is restricted to the tissues of the mammary gland with which they combine and in which, under normal conditions, they induce growth processes. The carcinogenic effect of this hormone is thus restricted to secondary sex organs. It is this specific character which distinguishes the action of ovarian hormones from that of the carcinogenic agents present in tar. Such a specificity is very far reaching; it extends in a graded degree even to the sex organs themselves. Thus it could be shown that the follicular hormone induces growth processes in the vagina, and in the vaginal, middle and uterine cervix of the guinea-pig with an intensity that decreases in these organs quantitatively in the order named.[30] This specificity relates in the first place to the substratum on which these hormones act and to a less extent to the hormone as such. In the case of the carcinogenic hydrocarbons, on the other hand, such a specificity is much less pronounced, or it may be lacking altogether; they seem to be able to induce the transformation of normal into cancer tissues at any point at which they come into long continued contact with tissues, whether these are of epithelial or of connective tissue origin, provided they still possess the potentiality to grow and proliferate. However, while the induction of growth processes in the organs on which they act specifically is accomplished very rapidly by the estrogenic substances, the cancerous transformation that they cause occurs only after these growth stimuli have had a chance to act over a relatively long period of time. Similarly the carcinogenic hydrocarbons of tar effect the cancerous transformation only after long continued action on the tissues, in which they step by step induce manifestations of increased growth energy. In the case of both estrogenic hormones [22] and tar,[31] the definite cancerous transformation is preceded by a preparatory period. When this stage has been reached, the carcinogenic agent, whether hormone or tar, no longer needs to be applied; the carcinogenic effect follows spontaneously in the course of time. Furthermore, in both cases it can be shown that the longer the stimulus has acted the greater is the incidence of cancer and the earlier the period of life at which it appears.

In both instances the carcinogenic effect is evidently an indirect one; it differs from the growth processes that the ovarian hormones as well as other hormones, such as the thyroid stimulating hormone, induce in the susceptible tissues, and it depends on changes that take place gradually in the cells under the influence of the continued action of these various agents. However, while the hydrocarbons of tar, as well as the estrogenic hormones, may be more efficient than other factors in producing cancer, in principle they do not act differently from the numerous other conditions that may cause cancer following a preliminary period of increased, nonspecific growth processes. Provisionally it may be assumed that all these agents, but with varying readiness, gradually induce changes in the normal cell equilibrium and thus, step by step, transform it into a cancerous equilibrium in which certain growth substances are produced in an increased quantity and perhaps also in a qualitatively modified manner. The latter which, as far as fowl sarcoma is concerned, at the same time may also induce specific tissue transformations,[32] continue then to be produced as the result of the changed cell metabolism in a manner that resembles an autocatalytic process. In this connection it may be recalled that Murphy considers the filtrable agent of chicken tumors not as an ultramicroscopic living organism but as a nonliving organic substance. In the case of Rous sarcoma, substances of this nature which are formed in excess in the cancerous cells may be separated from the cells and as such induce the cancerous transformation directly in other cells with which they have combined.[33] However, this interpretation, as stated, must at present be regarded as tentative. There exists the possibility that an extraneous virus, either in combination with cell specific substances or alone, is responsible for this direct, almost instantaneous, cancerous transformation (Gye and Purdy,[34] Andrewes [64]).

SUMMARY

Briefly, the carcinogenic hydrocarbons of tar and related compounds, estrogenic substances as well as certain other factors, in the course of time may induce cancer formation in those tissues on which they act. But while carcinogenic hydrocarbons as well as regenerative processes (irritation) may affect a great variety of tissues, the estrogenic hormones are limited in their action to the tissues in which they induce growth processes during the normal sexual cycle. Both carcinogenic hydrocarbons and ovarian hormones bring about the cancerous transformations of tissues in an indirect manner; they differ in this respect from other agents merely from a quantitative point of view. The mechanism by which ovarian hormones produce proliferative processes in the sex organs differs from the mechanism underlying the cancerous transformation, although the latter may ultimately depend on proliferative processes acting over a long period of time. There exist, therefore, no direct but only indirect connections between the carcinogenic action of the hydrocarbons of tar and the carcinogenic effect produced by estrogenic hormones.

28. Loeb, Leo., and Gentner, I. T.: Heredity and Internal Secretion in Origin of Mammary Cancer in Mice, Proc. Soc. Exper. Biol. & Med. 25: 809 (June) 1928.

30. Loeb, Leo: On the Graded Relation Between the Intensity of Hormone Action and the Character of the Incipient Tissue, Endocrinology 12: 161 (March-April) 1928.

31. Bang, F.: Démonstration expérimentale d'un temps de latence dans l'éclosion des tumeurs malignes, Compt. rend. Soc. de biol. 87: 754, 1922.

32. Claude, A., and Murphy, J. B.: Transmissible Tumors of the Fowl, Physiol. Rev. 12: 246 (April) 1933.

33. Loeb, Leo: General Problems and Tendencies in Cancer Research, Science 48: 293 (March 3) 1916; footnotes 22 and 26.

34. Gye, W. E., and Purdy, W. J.: Cause of Cancer, London, Cassell & Co., Ltd., 1931.

Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

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NOTE.—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The series of articles will be continued from time to time in these columns.—ED.

THERAPY OF UREMIA (AZOTEMIA)

True uremia is a syndrome the characteristic feature of which is retention of nitrogenous waste products in the system owing to insufficiency of kidney function. It must be distinguished from eclampsia (q. v.) believed to be due to angiospastic cerebral edema, which may occur without kidney insufficiency, as well as from the cerebral angiospastic ischemia attacks of arteriosclerosis (q. v.), because the therapy and the prognosis of these three conditions are quite different. Although these various disturbances may occur in all possible combinations, it is not only illogical to speak of "uremia without kidney insufficiency" or "pseudo-uremia," as Volhard, for instance, does, but also fatal to the drawing of clear indications for therapy.

DIAGNOSIS

The diagnosis must be based on definite evidence of a considerable degree of retention of waste products of metabolism (direct evidence of uremia) and of marked kidney insufficiency (indirect evidence of uremia), though organic kidney disease is not necessarily present.

The direct evidence rests on the demonstration of a high percentage of nonprotein nitrogen (the nonprotein nitrogen above 66 mg. per hundred cubic centimeters), of high blood urea (urea nitrogen above 45 mg. per hundred cubic centimeters) and of creatinine (above 3 mg. per hundred cubic centimeters). Of great significance is the demonstration of indican (test 1) in the serum, and possibly of still greater importance is that of phenol (test 2) in the serum. This is accompanied by a severe and progressive acidosis, the degree of which is an even better measure of the danger to the nephritic than is nitrogen retention. Hence the necessity of testing the alkali reserve in every case of severe kidney disturbance (see Acidosis).

The indirect evidence is a low fixed specific gravity of the day and the night urine (1.015 or less) and a relatively high volume of night urine (750 cc. or more), with a low salt (test 3) and nitrogen concentration and a low phenolsulphonphthalein excretion (25 per cent or less, test 5). Albuminuria and cylindruria are of no value in the recognition of uremia.

An important variety of uremia is that secondary to hypochloridosis, such as occurs most especially as the result of excessive vomiting in gastrectasia or in intestinal obstruction. When there is little or no chloride for the kidney to eliminate, nitrogen retention occurs, which leads to the phenomena of uremia. This condition should be suspected most especially when the urinary examination is practically negative excepting for the extremely low percentage of chloride in the urine. The blood chloride test (test 4) clinches the differentiation. In normal individuals the blood chloride ranges between 450 and 500 mg. per hundred cubic centimeters.

PROPHYLAXIS

The prevention of uremia is one of the chief indications in the therapy of nephritis (q. v.). It must suffice here to say that the most successful therapy of uremia lies in the recognition of the danger of uremic coma and in energetic efforts to jugulate it.

When the nephritic patient commences to complain of progressive weakness, sleepiness, headache or itching, and he is found to be mentally dull, with urinary odor of the breath and possibly incrustations of urea on his skin, most especially "urea frost" about the nostrils, a phenolsulphonphthalein test (test 5) at least should be taken. If the output is below 40 in the hour, the residual nitrogen in the serum is presumably increased. Special attention should be paid to the circulation, and myocardial insufficiency (q. v.) must be antagonized; for uremia is aggravated by heart weakness, which it in turn increases with the production of a vicious circle.

The physician should beware of unduly antagonizing symptoms that might be interpreted as efforts at vicarious elimination. Diarrhea, vomiting, epistaxis or hemorrhoidal bleeding, if not excessive, may be salutary. If they seem to become too troublesome or to weaken the patient, they should be checked in a gradual rather than a sudden manner by the use of the remedies described elsewhere in connection with the therapy of these conditions. Against the gastro-intestinal manifestations of uremia, lavage of the stomach and bowel is likely to be the most efficient and least harmful procedure.

PREVENTION OF UREMIC COMA

The prevention of uremic coma in a patient threatened with it as suggested by the clinical phenomena described requires the following measures:

1. The patient should have absolute rest in bed.

2. The dietary regimen to be resorted to demands differentiation between at least four possible varieties of uremia: (*a*) intestinal intoxication predominating (indican and phenol in serum); (*b*) acidosis prominent; (*c*) hypochloridosis; (*d*) hypohydration.

(*a*) Starvation for a day is a good beginning when intestinal intoxication predominates, provided the patient is well nourished. This is followed by high carbohydrate-low protein diet (see Nephritis).

(*b*) Acidosis does not permit starvation. It demands a sugar diet from the start, which may consist, for example, of the juice of one lemon, one teaspoonful of cane sugar, and six tablespoonfuls of lactose in enough water for solution (1½ cupfuls). This quantity, given four times daily, yields 1,242 calories, which may suffice for possibly two days. It might be followed by the banana-cream diet: morning and evening 300 Gm. of ripe bananas and 100 cc. of cream, and at noon 200 cc. of cream soup, 300 Gm. of bananas and 200 cc. of milk, yielding 1,335 calories, protein 29 Gm. and alkaline ash. This must not be continued for more than a few days and it should be followed by the lactovegetarian diet (see Nephritis) with an abundance of potatoes because of their alkaline ash. Protein must be but moderately restricted for continued sustenance.

Patients who are nearly always on the verge of uremia may be kept in a fair degree of comfort for a long time by a more or less weekly repetition of this program.

(*c*) Hypochloridosis requires the additional administration of sodium chloride given, if the stomach is nonretentive, in the form of retention enemas, hypodermoclysis or intravenous injection of Physiologic Solution of Sodium Chloride in accordance with the degree of the emergency. If this is extreme, even hypertonic (10 per cent) salt solution may be used in phleboclysis, drop by drop. Great salt restriction is not advisable in any patient threatened with uremia.

(*d*) Hypohydration is especially threatened when emesis predominates. Such vomiting indicates gastric lavage with 2 per cent sodium bicarbonate solution, followed by duodenal tube administration of 1 or 2 liters of hot water (110 F.) or of 2 per cent sodium bicarbonate solution (if acidosis is present) or of Physiologic Solution of Sodium Chloride if hypochloridemia prevails. Giving these solutions hot may succeed in establishing profuse and salutary sweating.

3. The necessity for intestinal evacuation is especially demonstrated by the presence of indican and of phenol in the serum.

Mild Mercurous Chloride Tablets

℞ Ten tablets of Mild Mercurous Chloride, each 0.006 Gm.
Label: One every hour until all are taken.

(*a*) If constipation prevails, a saline cathartic, such as Sodium Sulphate (15 Gm.), may be given every morning, with possibly initial Mild Mercurous Chloride administration in broken dosage for the first day or two. Magnesium salts are contraindicated in uremia as, owing to retention of magnesium ions in the system, a condition of coma—easily mistaken for uremic coma—may be induced in nephritic patients by magnesium sulphate purgation. It is not advisable to maintain a diarrheal condition by means of purgation, as this weakens the patient, because relatively more nutrient matters than nitrogenous waste products are lost in the watery stools.

(*b*) When there is diarrhea, and also in the presence of constipation, prolonged colon irrigation with hot 2 per cent sodium bicarbonate solution is desirable, with the use of 2 or 3 gallons of the fluid in the course of an hour or two.

4. Heat must be employed the more cautiously, the more critical the condition. Excepting for applications to the loin it is contraindicated by myocardial insufficiency. One may choose from among the following methods:

(*a*) The loin poultice or hot wet pack is desirable, moist heat being better than dry heat in those cases in which the skin is harsh and dry.

(*b*) The electric light "baker," either general or applied only to the loin, if the heart is weak, is the more convenient method. It is to be preferred therefore, provided the skin is tolerably active.

General diaphoresis by any one of these measures must not be attempted until improvement has commenced to set in, for fear of weakening the heart or of increasing hypohydration or hypochloridosis, thus aggravating the uremia. When definite improvement has set in, a mild degree of sweating may be salutary; but exhausting and drenching sweats should be avoided, for the skin is but a poor vicarious emunctory for the kidney. Pilocarpine Nitrate (5 mg. hypodermically or 10 mg. by mouth) is admissible only if the patient, while in a general heating procedure, does not sweat and has become extremely hot and uncomfortable. It is contraindicated by heart weakness and pulmonary edema. Excessive or dangerous pilocarpine action may be promptly checked by Atropine Sulphate (0.5 mg.) given hypodermically.

5. Diuresis is contraindicated until considerable improvement has set in. Then it may be attempted cautiously, as discussed under "Therapy of Nephritis," with continued observation of the effect. The diuretic least likely to be harmful is water, which might be given as a deliberate "water thrust" of 2 or 3 liters of water or of other fluid daily, a careful watch being made of the effect on the urine and the intake being promptly diminished if the quantity of urine is not increased or as soon as the initial diuresis commences to fall off.

TREATMENT OF UREMIC COMA

The obstinate recurrence of the precoma manifestations or the actual development of true uremic coma is tantamount to the recognition of an incurably malignant condition and requires the application of the principles of the therapy of a hopeless case. When the patient is obviously moribund it is nothing less than cruel to subject him to a barrage of useless and disturbing procedures. It is one's duty then to practice euthanasia; i. e., to minimize, as far as possible, the agony of dying. When the condition is not as extreme, one should aim to prolong life as far as possible by gentle means but not at the expense of subjecting the patient, suffering from an incurable condition that will soon end his life, to painful or terrifying attempts at treatment that cannot do more than merely prolong his suffering for a while. True therapy is tender; it never tortures. It is the business of the physician to make the patient as comfortable and as cheerful as possible. When he asks whether there is any chance for him, the answer might be: "The condition is serious, but as long as there is life there is hope." To the patient's relatives the full gravity of the situation should be tactfully revealed. It is well to request a consultation, even if—and actually because—the diagnosis and prognosis are clear.

1. When, in spite of the application of the prophylactic measures discussed, the patient's condition becomes alarming or coma manifests itself suddenly, the immediate abstraction of 400 or 500 cc. of blood by vein puncture may be of telling effect. It might be repeated, if required, after four or five days, provided the hemoglobin percentage is not too low. Unfortunately, the results of subsequent abstractions of blood become progressively less satisfactory so that, while it should not be postponed too long, it also should not be resorted to unless actually required possibly to prolong life for a while. Blood transfusion is not to be recommended.

2. Lumbar puncture might be tried in cases that do not respond to other measures. It is stated to be of special value against the itching of uremia.

3. Dextrose phleboclysis might be employed in conjunction with bloodletting.

(*a*) One might infuse 500 cc. of 5 per cent dextrose solution (without sodium chloride, unless there is hypochloridosis), and this might be repeated at intervals after the effect has been carefully observed. Continuous phleboclysis is contraindicated, as it would soon overburden the system with fluid.

(*b*) When the heart is enfeebled or there is evidence of high intracranial tension, one should preferably infuse from 100 to 200 cc. of 25 per cent solution of dextrose, which might be repeated at intervals if the effect is satisfactory.

4. A heart stimulant, e. g., strophanthin (from 1/3 to 1/2 mg.) might be infused with the dextrose solution or injected intramuscularly, provided the patient has not been previously digitalized.

5. A purgative might be resorted to if the patient's bowels are constipated.

(*a*) Placing a drop of Croton Oil mixed with a little butter on the back of the patient's tongue is a time-honored procedure in the treatment of uremic coma.

(*b*) Others advise that, because it is less drastic, 0.6 Gm. of Mild Mercurous Chloride with a teaspoonful of snow-ice be placed on the back of the tongue.

(*c*) Compound Jalap Powder (from 2 to 4 Gm.) in water might be given instead of either of the foregoing if the patient can swallow.

6. The diet is not of primary importance at this stage. The time has passed when rigid dietary restriction will do the patient much good. His likes and dislikes should now be consulted.

7. Of sedatives, (*a*) Morphine Sulphate is the physician's indispensable ally for the relief of symptoms that do not respond readily to simpler remedies. It should be used against persistent hiccup, paroxysmal dyspnea (uremic asthma), muscle cramps, restlessness, insomnia and delirium. In view of its presumably poor elimination in these cases, it should be given in moderate doses (from 8 to 16 mg.) at intervals of perhaps six to eight hours. It should be avoided, if possible, when there is itching, as it may aggravate the pruritus as an after effect. It should be employed only as a last resort in the presence of Cheyne-Stokes breathing, as it greatly accentuates this disturbance.

(*b*) Other sedatives may have to be resorted to when morphine is contraindicated; e. g., bromide, chloral or scopolamine (see Insomnia).

8. Of stimulants, (*a*) hot black coffee, by mouth or rectum, or caffeine sodiobenzoate (0.2 Gm. in ampule) given hypodermically may be of value in the dyspnea of Cheyne-Stokes respiration.

(*b*) Atropine Sulphate (0.5 mg.) might be tried against this dyspnea and it should certainly be given with the morphine, if the help of this remedy of despair is required.

9. Surgery is contraindicated in the presence of uremia, with the exception of the acute uremia of post-scarlatinal glomerulonephritis, in which kidney decapsulation may be worth trying. In the uremia of prostatic hypertrophy, operation should not be undertaken until the blood has been rendered as nearly normal as possible.

10. Complications, such as "renal pericarditis" and acute infections, should be particularly looked for in these cases. When present, they are prone to be "terminal" and appropriate arrangements should be made, such as notifying distant relatives or, with Catholics, calling the priest.

TESTS

Test 1.—*Blood Indican.*—1. Whole blood in centrifuge tube (about 10 cc.) is allowed to coagulate. Centrifugate, decant, obtaining 5 cc. serum.

2. To 5 cc. of serum add an equal amount of distilled water (5 cc.).

3. Add 10 cc. of 20 per cent trichloracetic acid. Filter.

4. To filtrate, add a few drops of thymol reagent (5 per cent thymol in 95 per cent alcohol).

5. Add also to filtrate an equal amount of Obermayer's reagent (0.5 per cent ferric chloride in concentrated hydrochloric acid). Mix thoroughly. Let stand two hours.

6. Add 5 cc. of chloroform; shake vigorously and allow to settle. Read as 1 to 4 plus in settled chloroform according to depth of violet color.

Test 2.—*Blood Phenol.*—1. Obtain about 10 cc. of whole blood in a centrifuge tube; allow to coagulate, centrifugate, and decant the blood serum.

2. To 4 or 5 cc. of blood serum, add an equal amount of 20 per cent Trichloracetic Acid.

3. Filter.

4. To 2 cc. of filtrate, add 0.5 cc. of concentrated nitric acid.

5. Boil from half a minute to a minute.

6. Cool. Add 1.5 cc. of 33 per cent sodium hydroxide.

Reactions: Positive, a markedly golden color, depending on the degree of renal insufficiency. Negative, a straw color.

(Becher in 1924 used 0.03874 per cent aqueous solution of potassium bichromate as a standard, by means of a colorimeter.) The gross reaction as described is sufficiently reliable.

Test 3.—*Approximate Estimation of Chlorides in the Urine.*—Apparatus required: 1. A test tube. 2. Two medicine droppers of identical bore at the end. 3. A 2.9 per cent solution of silver nitrate. 4. A 20 per cent solution of potassium chromate.

Technic: 1. Put exactly 10 drops of urine in a test tube.

2. Add 1 drop of the potassium chromate solution. The fluid will now assume a somewhat distinctly yellow color.

3. Add drop by drop, with a dropper of the same caliber, the silver nitrate solution until a permanent and distinct color change to red brown occurs (due to the formation of silver chromate).

The number of drops required to produce the change of color expresses in grams the content of chlorides per liter of urine.

Test 4.—*Blood Chloride Test.*—1. To 12 cc. of distilled water in a 20 to 25 cc. centrifuge tube is added 3 cc. of whole blood, and then about 0.5 Gm. of dry trinitrophenol. The mixture is now stirred until protein precipitation is complete and the mixture turns a bright yellow color. The precipitate is next thrown down in the centrifuge, and the supernatant fluid is filtered into a dry tube.

2. Five cc. of the filtrate is then pipetted into a centrifuge tube of 25 cc. capacity and 20 cc. of the standard silver nitrate-acidified ferric alum indicator solution[1] added. The contents are stirred to insure thorough mixing and the silver chloride precipitate thrown down in the centrifuge. The clear supernatant fluid is decanted into a clean dry beaker and 20 cc. pipetted into a small porcelain evaporating dish for titration.

3. The titration is made with ammonium thiocyanate solution[2] of such strength that 1 cc. is the equivalent of 1 cc. of the silver indicator solution. The end point is definite and consists of the first permanent tinge of reddish brown that extends throughout the mixture.

4. The calculation may be carried out with the aid of the following formula:

$$20 - (\text{titer} \times 5/4) \times 0.5 \times 100 = \text{mg. of sodium chloride in 100 cc. of whole blood or plasma.}$$

Test 5.—*Phenolsulphonphthalein Test.*—The patient, having received 400 cc. of water, should empty the bladder completely. An intramuscular injection is given of exactly 1 cc. of the dye solution.

Exactly one hour and ten minutes after the dye injection, the patient should empty the bladder ("first hour" specimen).

Exactly two hours and ten minutes after the dye injection, the patient again empties the bladder ("second hour" specimen).

In the presence of edema, the dye must be injected intravenously.

1. The standard silver nitrate-acidified ferric alum indicator solution may be prepared by dissolving 2.904 Gm. of silver nitrate in distilled water and making up to 1,000 cc. and then mixing with 1,000 cc. of acidified indicator containing 100 Gm. of crystalline ferric ammonium sulphate and 100 cc. of 25 per cent nitric acid. Two cubic centimeters of this combined solution is the equivalent of 1 mg. of sodium chloride. Both the silver nitrate solution and the acidified indicator solution are one-tenth (combined one-twentieth) the strength of similar solutions employed in the Volhard-Harvey method for urine.

2. The ammonium thiocyanate solution is standardized against the silver nitrate and made of equivalent strength. It contains approximately 0.65 Gm. of the thiocyanate to 1,000 cc. It is one-twentieth the strength employed for the Volhard-Harvey method in urine.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

POLLEN EXTRACTS-U. S. STANDARD PRODUCTS CO.—Solutions prepared by extracting the dried pollen of various species of plants with a buffered glycerosaline solution.

Actions and Uses.—(See General Article, Allergic Protein Preparations, New and Nonofficial Remedies, 1934, p. 25.)

Dosage.—(See General Article, Allergic Protein Preparations, New and Nonofficial Remedies, 1934, p. 25.)

All of the pollen extracts-U. S. Standard Products Co. are supplied in 5 cc. vials containing 20,000 units per cubic centimeter. In addition, two of the products (Grasses Combined and Ragweed Combined) are marketed in single treatment set packages of three vials, containing respectively 100, 1,000 and 10,000 units per cubic centimeter and accompanied by a vial containing 2 cc. of epinephrine hydrochloride solution 1:1,000.

Prepared by the United States Standard Products Company, Woodworth, Wis. No U. S. patent or trademark.

Bermuda Grass Pollen Extract-U. S. S. P. Co.; Box Elder Pollen Extract-U. S. S. P. Co.; Burweed Pollen Extract-U. S. S. P. Co.; Careless Weed Pollen Extract-U. S. S. P. Co.; Cocklebur Pollen Extract-U. S. S. P. Co.; Corn Pollen Extract-U. S. S. P. Co.; Cosmos Pollen Extract-U. S. S. P. Co.; Cottonwood (Poplar) Pollen Extract-U. S. S. P. Co.; Dandelion Pollen Extract-U. S. S. P. Co.; Elm Pollen Extract-U. S. S. P. Co.; English Plantain Pollen Extract-U. S. S. P. Co.; Goldenrod Pollen Extract-U. S. S. P. Co.; Grasses Combined Pollen Extract-U. S. S. P. Co. (Bermuda Grass, June Grass, Orchard Grass, Red Top, Sweet Vernal Grass and Timothy in equal parts); Johnson Grass Pollen Extract-U. S. S. P. Co.; June Grass Pollen Extract-U. S. S. P. Co.; Lambs Quarters Pollen Extract-U. S. S. P. Co.; Maple Pollen Extract-U. S. S. P. Co.; Marsh Elder Pollen Extract-U. S. S. P. Co.; Mugwort (Wormwood) Pollen Extract-U. S. S. P. Co.; Orchard Grass Pollen Extract-U. S. S. P. Co.; Pigweed (Redroot) Pollen Extract-U. S. S. P. Co.; Ragweed (Common) Pollen Extract-U. S. S. P. Co.; Ragweed (False) Pollen Extract-U. S. S. P. Co.; Ragweed (Giant) Pollen Extract-U. S. S. P. Co.; Ragweed (Western) Pollen Extract-U. S. S. P. Co.; Ragweed Combined Pollen Extract-U. S. S. P. Co. (Giant and Common Ragweed, in equal parts); Red Oak Pollen Extract-U. S. S. P. Co.; Red Top Pollen Extract-U. S. S. P. Co.; Russian Thistle Pollen Extract-U. S. S. P. Co.; Rye Grass Pollen Extract-U. S. S. P. Co.; Sweet Vernal Grass Pollen Extract-U. S. S. P. Co.; Timothy Pollen Extract-U. S. S. P. Co.; White Ash Pollen Extract-U. S. S. P. Co.; White Oak Pollen Extract-U. S. S. P. Co.

Prepared by extracting the dried pollen with a menstruum containing 67 per cent glycerin and 33 per cent of a physiologic saline solution containing 0.0908 per cent potassium dihydrogen phosphate and 0.238 per cent dibasic sodium phosphate. The pollen is extracted for twenty-two hours in a ball mill, pulped and clarified by Berkefeld filtration. The finished liquid is a 5 per cent extract of dried pollen. Each cubic centimeter represents 50,000 pollen units, one pollen unit being the equivalent of 0.001 mg. of dried pollen. The marketed products represent appropriate dilutions of this stock solution and are preserved with 0.35 per cent of phenol.

SCARLET FEVER STREPTOCOCCUS TOXIN (See New and Nonofficial Remedies, 1934, p. 389).

Lederle Laboratories, Inc., Pearl River, N. Y.

Scarlet Fever Streptococcus Immunizing Toxin.—Prepared by the method of Drs. Dick under U. S. patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. Marketed in single immunization packages of five vials of toxin containing, respectively, 500, 2,000, 8,000, 25,000 and 80,000 skin test doses; also marketed in ten immunization packages of six 10 cc. vials of toxin containing, respectively, 500, 2,000, 8,000, 25,000, 80,000 and 80,000 skin test doses per cubic centimeter.

SCARLET FEVER IMMUNITY TEST (See New and Nonofficial Remedies, 1934, p. 406).

Lederle Laboratories, Inc., Pearl River, N. Y.

Scarlet Fever Streptococcus Toxin for the Dick Test.—Prepared by the method of Drs. Dick under U. S. patent 1,547,369 (July 28, 1925; expires 1942) by license of the Scarlet Fever Committee, Inc. Marketed in packages of one vial containing sufficient toxin for ten tests; in packages of one vial containing sufficient toxin for 100 tests.

AMINOACETIC ACID (See THE JOURNAL, April 6, 1935, p. 1241).

Aminoacetic Acid-Calco.—A brand of aminoacetic acid-N. N. R.

Manufactured by the Calco Chemical Co., Bound Brook, N. J. No U. S. patent or trademark.

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED) (See New and Nonofficial Remedies, 1934, p. 393).

The Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxoid, Alum Precipitated, Refined.—Prepared from diphtheria toxin having an L+ dose of 0.20 cc. or less. The toxin is treated with from 0.3 to 0.4 per cent formaldehyde at a temperature of from 38 to 40 C. until the toxicity is so reduced that the injection of five human doses into a guinea-pig will produce no symptoms of local or general diphtheria poisoning. The toxoid is precipitated by the addition of not more than 2 per cent of potassium aluminum sulphate. The precipitate is washed twice with physiologic solution of sodium chloride and resuspended in physiologic solution of sodium chloride to a volume not less than the volume of the original toxoid. Merthiolate 1:7,500 is added as a preservative. The product is tested for potency according to the method prescribed by the National Institute of Health: guinea-pigs weighing 300 Gm., given one human dose, must develop within six weeks at least two units of diphtheria antitoxin per cubic centimeter of blood serum. Marketed in packages of 1 cc. (one immunizing treatment) and in packages of one 10 cc. vial (ten immunizing treatments).

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

RAYMOND HERTWIG, Secretary.

NOT ACCEPTABLE

DINA-MITE (BLUE LABEL) WHEAT BASE: WHEAT—BRAN—FLAX

DINA-MITE (RED LABEL) OAT BASE: OATS—BRAN—FLAX

The Dina-Mite Food Company of Los Angeles submitted to the Committee on Foods a mixture of cracked hard wheats, wheat bran and partially defatted flaxseed meal called "Dina-Mite (Blue Label) Wheat Base: Wheat—Bran—Flax" and a mixture of rolled oats, wheat bran and partially defatted flaxseed meal called "Dina-Mite (Red Label) Oat Base: Oats—Bran—Flax."

Analyses (submitted by manufacturer).—

Dina-Mite (Blue Label) Wheat Base	per cent
Moisture	9.0
Ash	3.2
Fat (other extraction method)	2.5
Protein (N × 6.25)	11.4
Crude fiber	5.8
Carbohydrates other than crude fiber (by difference)	68.1

Dina-Mite (Red Label) Oat Base	per cent
Moisture	9.0
Ash	3.0
Fat (other extraction method)	4.8
Protein (N × 6.25)	15.5
Crude fiber	5.0
Carbohydrates other than crude fiber (by difference)	62.7

Discussion of Name, Label and Advertising.—The labels carry the statements: "Wheat-Bran-Flax . . . Oats-Bran-Flax . . . Natural laxative food for young and old . . . With all their vital elements, protein, bulk and minerals . . . Dina-Mite used daily gives the system . . . the proteins-heating-foods-roughage-bulk and minerals."

The name Dina-Mite for a laxative food is vulgar. The label statement listing food ingredients is incorrect, as partially defatted flax, and not "flax," is an ingredient. The indigestible roughage of these two products will increase the bulk of the intestinal contents but thereby tend to prevent only dietary constipation due to insufficient food residue. Constipation, however, may be due to many other causes. The label should correctly inform the consumer on these matters by recommending the foods for correcting constipation due only to insufficient bulk and advising that a physician should be consulted for cases not corrected in this simple manner. Bran and other foods providing considerable bulk may be irritating to sensitive bowels. Food high in bran content, if generally used by the aged, may be harmful. The products do not furnish all required proteins, food energy or minerals as stated or implied.

Some misinformative claims from the advertising follow:

"A Healthy Body Means a Healthy Mind! Give your child a chance. A dish of Dina-Mite, the famous Laxative Cereal, bestows the energy and pep that school work requires. . . . Relieves constipation. . . .

A scientifically balanced natural food. . . . Leading doctors endorse Dina-Mite. Hospitals, health centers, maternity homes, state custodial schools and other prominent state and private institutions, use and endorse Dina-Mite. . . . The Perfect Balanced Food . . . the famous health cereal . . . health-giving . . . healthful for children. . . . Health for your Kiddies. . . . If you are a victim of constipation . . . eat Dina-Mite twice daily until the condition improves . . . contains the essential elements for proper nourishment. . . . Dina-Mite is scientifically prepared to enable you to enjoy natural digestion and action. It is an important aid to great health . . . The wheat (ingredient) . . . retains all of its vitamins, proteins, minerals and other vital elements. *The bran, added in scientific proportions,* gives additional roughage. Flax meal, a wonderful laxative specially treated and deodorized, is the third ingredient, and it is added in a *healthful* amount to stimulate normal bowel action."

The advertising includes testimonials of a therapeutic character; for example:

"Dina-Mite Food Co. of Calif.
Gentlemen:
I am now on my third package of 1½-lb. size Dina-Mite (wheat). I have been troubled with chronic constipation for thirty years and have used laxatives perhaps every day during that period. Such a condition brought on stomach trouble that almost broke my health. I have lost twenty pounds during the past three years. . . . I follow your cooking directions and eat the full portion with cream. . . . After the second day I experienced immediate relief from constipation and gas pains, which continues to improve. I have not taken medicine of any form lately. It is the first time for many months that I have been able to sleep without the use of a heating pad on my stomach, or getting up at night to walk the floor for a couple of hours. I have gained four pounds in twelve days. I believe you really have 'struck oil'. . . .
(name given)
Hollywood, California."

"Dina-Mite Food Co. of Calif.
Gentlemen:
I am very glad that you familiarized me with your special-made food, Dina-Mite, when I lasted visited you. . . . If more men and women would use your Dina-Mite regularly, they would need purchase less medicine and make fewer calls on the physician. . . . It seems to have everything that such a food could or should have . . . its mild laxative effect, together with it having all the vital food elements, makes it a very necessary food. . . .
Very truly yours,
(name given)"

These foods will not "bestow the energy and pep that school work requires." The terms "energy and pep" popularly imply a body condition of extreme well being or health, which cannot be "bestowed" by any one food or even by the entire diet. The foods are not "scientifically balanced" as claimed. Statements of this character have no real meaning but because of vagueness are misleading by incorrectly implying that the products have unusual values by scientific test. They are not "natural foods" but rather prepared foods and are not endorsed by "doctors, hospitals, health centers, maternity homes, state and private institutions" as claimed. Vague claims of endorsement of this character falsely imply unique nutritional or therapeutic values, or that these professions or institutions as bodies have specially investigated and passed scientific judgment on the products, which is not true. These foods are not "perfectly balanced" but, rather to the contrary, are deficient in many respects. They are not "health cereals, health giving or healthful for children" nor are they "health for your kiddies." No foods possess values warranting these designations. Health depends on many factors and conditions other than individual foods or even the entire diet. The foods do not "contain the essential elements for proper nourishment"; they are in fact much limited in this respect. Dina-Mite is not "scientifically prepared to enable . . . natural digestion." Good digestion and Dina-Mite are not related in any manner. The bran is not "added in scientific proportion." This is a misuse of the term "scientific," which has impressive connotations.

Testimonials such as the two quoted apparently come from individuals unqualified to express a scientific or authoritative opinion or judgment on the values of Dina-Mite for accomplishing the results claimed. The testimonials by implication give further support to the medicinal or therapeutic character of the advertising as a whole. Testimonials have value only when coming from persons qualified by training and experience to express an unbiased, scientific judgment on the subject.

The labels and advertising are grossly misinformative and false. Advertising for foods should be simply and correctly informative to the consumer. Advertising not filling these qualifications is harmful to the public and to the food industry. These products, therefore, cannot be listed among the accepted foods of the Committee on Foods.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

WAUKESHA ROXO MINERAL SPRING WATER

Distributor.—Waukesha Roxo Company, Milwaukee.

Description.—Bottled spring water of moderate mineral content practically free of micro-organisms.

Collection and Bottling.—The housed flowing spring at Waukesha, Wis., is protected from surface water contamination by a concrete encasement to a depth of thirty feet. The water is pumped through a filter and an ultraviolet ray machine into glass lined storage tanks from which it flows into filling machines and is sealed in bottles.

All bottles are washed in a bottle washing machine. Used bottles are sprayed with a 10 per cent sulphuric acid solution to remove mineral deposit, soaked and sprayed with 3 per cent caustic soda solution at 120 F. under 30 pounds pressure, and given four fresh water rinsings. All pipes and storage tanks are regularly treated with sodium hypochlorite solution. Periodic inspections are made by the city of Milwaukee health department and bacteriologic examinations are made each month.

Analysis (submitted by distributor).—

Sanitary Analysis	Parts per Million
Ammonia nitrogen	0.01
Albuminoid nitrogen	0.01
Nitrite nitrogen	none
Nitrate nitrogen	6.

Chemical Analysis	
Total residue on evaporation	610.
Fixed residue after ignition	368.
Free carbon dioxide (CO_2)	22.
Carbon dioxide, combined as bicarbonate	246.
Carbon dioxide, combined as carbonate	none
Aluminum (Al)	6.
Boron (B)	none
Calcium (Ca)	111.
Iron (Fe)	0.1
Magnesium (Mg)	51.
Potassium (K)	1.
Sodium (Na)	26.
Bicarbonate (HCO_3)	341.
Chloride (Cl)	31.
Nitrate (NO_3)	26.
Phosphate (P_2O_5)	none
Silica (SiO_2)	12.
Sulphate (SO_4)	116.

Micro-Organisms.—Bacteriologic examination shows only few harmless micro-organisms in the water.

CELLU JUICE-PAK RED RASPBERRIES

PACKED IN UNDILUTED JUICE WITHOUT ADDED SUGAR

Distributor.—The Chicago Dietetic Supply House, Inc., Chicago.

Packer.—Eugene Fruit Growers Association, Eugene, Ore.

Description.—Processed red raspberries packed in undiluted juice without added sugar.

Manufacture.—Ripe red raspberries are placed in small containers to prevent crushing, conveyed to the factory, graded according to size, inspected for removal of foreign material, spray washed and packed into cans. The cans are filled with undiluted juice expressed from other red raspberries, heated for five minutes, sealed, cooked in a continuously agitated cooker for a definite time and at a definite temperature, cooled and stored. Before shipment, the cans are inspected and labeled.

Analysis (submitted by distributor).—

	per cent
Moisture	85.6
Ash	0.5
Fat (ether extract)	1.2
Protein (N × 6.25)	1.0
Reducing sugars as invert sugar	6.3
Sucrose	1.0
Crude fiber	2.3
Carbohydrates other than crude fiber (by difference)	9.4

Calories.—0.5 per gram; 14 per ounce.

REPORTS OF OFFICERS

NOTE.—At the 1935 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion.—Ed.

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following report of the Secretary is respectfully submitted:

Membership

The members of the American Medical Association are those members of constituent state and territorial medical associations whose names have been officially reported for enrolment by the secretaries of the constituent associations. On April 1, 1935, the membership list contained the names of 99,536 members as compared with 98,041 on April 1, 1934. During the year ended April 1, 1935, the names of 1,725 deceased members were removed from the membership list.

Fellowship

The number of Fellows of the Association as shown by the official roster on April 1, 1935, was 61,406, a gain of 692. During the year, 3,833 names were removed from the Fellowship roster, while 4,575 new names were added. Of the names removed, 767 were those of deceased Fellows and 863 were the names of Fellows who had become ineligible for various reasons, while the names of 1,130 Fellows were removed because of failure to pay dues and 1,123 because of resignations.

An accompanying table shows the number of counties in each state and territory, the number of component societies as shown by the records in the Secretary's office, the number of members enrolled at the time the count was made for the purpose of compiling the table, and the number of Fellows, including Honorary Fellows and commissioned officers of government medical services.

Official Contacts with Component and Constituent Societies

The number of visits made by members of the official personnel of the Association to component and constituent societies and the attendance at meetings before which the Association's representatives have appeared have been much larger during the past year than in any similar preceding period.

At the Annual Conference of Secretaries of Constituent State Medical Associations held in Chicago in September 1934, nearly every state association was represented by its secretary and editor, and a number of the presidents and other officers of state associations were present.

The President, the President-Elect, individual members of the Board of Trustees, the Editor, the Secretary and the directing heads of the Association's councils and bureaus have appeared, on invitation, at the meetings of a large number of constituent state medical associations and component county medical societies. Many of them have addressed lay audiences in various parts of the country and have thus had opportunity to present the policies and the official point of view of the organized medical profession in the United States to a large element of the public.

Better Organization

Marked progress has been made during the past year in increasing the efficiency of medical organization in a number of states and in many individual counties. There can be no question that the official machinery of the constituent state medical associations is being gradually and constantly improved. It has been extremely gratifying to note the increased interest and efficiency of the Councils of a considerable number of the state associations and the great improvement that has been made in working efficiency of a large number of county societies. The elected and appointed officers and committees of state medical associations and of many county medical societies have rendered most devoted and efficient service in dealing with the many new problems that have been created through social and economic changes within the last few years. Two additional constituent state medical associations have employed full time secretaries.

Organization of Constituent State Associations

	Number of Counties in State	Number of Component Societies in State	Organization of Constituent State Associations: Number of Counties in State Not Organized	Number of Physicians in State 12th Ed. A.M.A. Directory	Number of Members of State Associations Apr. 1, 1934	Number of Members of State Associations Apr. 1, 1935	Number of A.M.A. Fellows in State
Alabama	67	67	..	..	2,129	1,452	1,451	494
Arizona	14	12	1	1	600	386	340	139
Arkansas	75	62	9	9	1,200	800	1,002	288
California	58	39	12	12	10,400	5,167	5,291	3,522
Colorado	63	28	2	2	1,674	1,089	1,105	620
Connecticut	8	8	..	..	2,212	1,472	1,516	923
Delaware	3	3	..	..	301	195	194	113
Dist. of Columbia	..	..	..	..	1,851	976	769	545
Florida	67	34	29	29	1,849	971	1,000	329
Georgia	161	95	66	66	2,811	1,669	1,647	701
Idaho	44	10	..	..	388	194	214	124
Illinois	102	98	6	6	11,304	6,979	6,767	4,389
Indiana	92	68	2	2	4,049	2,987	2,933	1,581
Iowa	99	97	..	..	3,141	2,191	2,219	1,322
Kansas	105	63	39	39	2,152	1,536	1,384	776
Kentucky	120	115	5	5	2,800	1,600	1,710	702
Louisiana	64	39	19	19	2,127	1,169	1,234	677
Maine	16	15	1	1	994	716	720	370
Maryland	23	22	1	1	2,617	1,432	1,329	773
Massachusetts	14	13	..	..	7,014	4,619	4,737	3,004
Michigan	83	53	4	4	5,578	3,218	3,468	2,160
Minnesota	87	33	2	2	3,174	2,212	2,220	1,415
Mississippi	82	39	4	1	1,525	1,219	1,220	313
Missouri	115	87	8	8	5,570	3,212	3,231	1,754
Montana	56	15	21	25	600	311	340	192
Nebraska	93	49	39	39	1,773	1,050	1,161	673
Nevada	17	3	13	14	139	102	109	68
New Hampshire	10	10	..	..	602	489	479	332
New Jersey	21	21	..	..	4,915	2,899	2,911	1,980
New Mexico	31	12	19	19	393	293	215	136
New York	62	49	1	1	22,912	13,074	13,388	9,989
North Carolina	100	84	2	2	2,600	1,516	1,526	749
North Dakota	53	13	10	10	311	289	275	208
Ohio	88	86	1	2	8,700	5,169	5,329	3,389
Oklahoma	77	65	12	11	2,400	1,571	1,512	690
Oregon	36	21	3	3	1,306	708	632	443
Pennsylvania	67	60	6	6	12,000	7,831	8,122	5,397
Rhode Island	5	4	1	1	907	495	494	358
South Carolina	46	39	..	..	1,329	935	921	345
South Dakota	69	12	12	11	583	388	392	194
Tennessee	95	67	19	16	2,970	1,587	1,583	899
Texas	254	138	13	12	6,670	3,679	3,690	1,799
Utah	29	9	15	4	521	379	391	214
Vermont	14	10	3	3	517	350	360	167
Virginia	100	52	12	11	2,650	1,823	1,740	843
Washington	39	21	14	14	2,000	1,312	1,303	797
West Virginia	55	29	5	5	1,779	1,108	1,122	697
Wisconsin	71	52	1	1	3,302	2,121	2,182	1,400
Wyoming	24	11	12	11	237	139	149	92
Alaska	..	..	..	..	55	14	13	17
Hawaii	5	4	1	1	352	221	225	104
Isthmian Canal Zone	..	..	..	..	104	109	108	15
Philippine Islands (Provinces)	38	11	45	45	2,147	688	717	38
Puerto Rico (Dist.)	7	7	..	..	407	331	338	71
Foreign	..	..	..	..	.....	.....	.....	141
Total	3,142	2,284	434	417	164,514	98,041	99,536	59,774
Commissioned Medical Officers and Honorary Fellows								2,632
								61,406

Communications and Resolutions

The following resolutions were received by the Secretary from the secretary of the California Medical Association:

Whereas, Because the large area and the long distances of the constituent states on the Pacific Coast make it practically impossible for one trustee to maintain intimate contact with the medical organizations of these states, and

Whereas, For similar reasons one trustee is unable to visit these several states and advise them in regard to Association policies and activities, and

Whereas, Such intimate affiliations would enhance the work of the American Medical Association and also that of the state association; therefore, be it

Resolved, That the Reference Committee on Amendments to the Constitution and By-Laws prepare the following amendment to article 6, section 1 of the Constitution: Strike out the word "nine" and insert therefor the word "eleven," thereby increasing the number of Trustees from nine to eleven; and, be it

Resolved, That the House of Delegates adopt the rule that one trustee shall be elected from the Fellows in California and one from the midwest or southwestern part of the country.

The Secretary received from the secretary of the National Society for the Advancement of Gastroenterology a communication enclosing resolutions as follows:

Whereas, The members of the National Society for the Advancement of Gastroenterology assembled Feb. 6, 1935, which organization is committed to the advancement of gastro-enterology for the benefit of American medicine, and

Whereas, Since the establishment of the Section on Gastro-Enterology and Proctology in the American Medical Association eighteen years ago has done much in stimulating a higher quality of diagnostic and medical abdominal work in the profession in this country, and

Whereas, Most of the advances made have been accomplished by those who have been working intensively in this field of work and freely given of their advances to American medicine, and

Whereas, the members of this organization are all of them members of the American Medical Association in good standing; be it

Resolved, That we respectfully request our parent organization, the American Medical Association, to certify this field of work by authorization of the American Board of Gastroenterology to stimulate still better work in the subject on the part of the profession and request also that we as a national organization be given representation on the Board of Gastroenterology with the section of the American Medical Association and the American Gastroenterological Association.

Called Session of the House of Delegates

At the request of the Board of Trustees, a special session of the House of Delegates, called by the Speaker, was convened Feb. 15 and 16, 1935, in Chicago. Of a possible 168 delegates from the continental United States, 162 official representatives of constituent state medical associations, sections of the Scientific Assembly and government medical services were in attendance.

The following report of a reference committee appointed by the Speaker was unanimously adopted by the House of Delegates:

Your reference committee, believing that regimentation of the medical profession and lay control of medical practice will be fatal to medical progress and inevitably lower the quality of medical service now available to the American people, condemns unreservedly all propaganda, legislation or political manipulation leading to these ends.

Your reference committee has given careful consideration to the record by the Board of Trustees of the previous actions of this House of Delegates concerning sickness insurance and organized medical care and to the account of the measures taken by the Board of Trustees and the officials of the Association to present this point of view to the government and to the people.

The American Medical Association, embracing in its membership some 100,000 of the physicians of the United States, is by far the largest medical organization in this country. The House of Delegates would point out that the American Medical Association is the only medical organization open to all reputable physicians and established on truly democratic principles, and that this House of Delegates, as constituted, is the only body truly representative of the medical profession.

The House of Delegates commends the Board of Trustees and the officers of the Association for their efforts in presenting correctly, maintaining and promoting the policies and principles, heretofore established by this body.

The primary considerations of the physicians constituting the American Medical Association are the welfare of the people, the preservation of their health and their care in sickness, the advancement of medical science, the improvement of medical care, and the provision of adequate medical service to all the people. These physicians are the only body in the United States qualified by experience and training to guide and suitably control plans for the provision of medical care. The fact that the quality of medical service to the people of the United States today is better than that of any other country in the world is evidence of the extent to which the American medical profession has fulfilled its obligations.

The House of Delegates of the American Medical Association reaffirms its opposition to all forms of compulsory sickness insurance, whether administered by the federal government, the governments of the individual states or by any individual industry, community or similar body. It reaffirms also its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all of the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness.

The medical profession has given of its utmost to the American people, not only in this but in every previous emergency. It has never required compulsion but has always volunteered its services in anticipation of their need.

The Committee on Economic Security, appointed by the President of the United States, presented in a preliminary report to Congress on January 17 eleven principles which that committee considered fundamental to a proposed plan of compulsory health insurance. The House of Delegates is glad to recognize that some of the fundamental considerations for an adequate, reliable and safe medical service established by the medical profession through years of experience in medical practice are found by the committee to be essential to its own plans.

However, so many inconsistencies and incompatabilities are apparent in the report of the President's Committee on Economic Security thus far presented that many more facts and details are necessary for a proper consideration.

The House of Delegates recognizes the necessity under conditions of emergency for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical services are administered and controlled by a lay bureau. While the desirability of adequate medical service for crippled children and for the preservation of child and maternal health is beyond question, the House of Delegates deplores and protests those sections of the Wagner bill which place in the Children's Bureau of the Department of Labor the responsibility for the administration of funds for these purposes.

The House of Delegates condemns as pernicious that section of the Wagner bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training.

The so-called Epstein bill, proposed by the American Association for Social Security now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous and demoralizing measure. An analysis of this proposed law has been published by the American Medical Association. It introduces such hazardous principles as multiple taxation, inordinate costs, extravagant administration and an inevitable trend toward social and financial bankruptcy.

The Committee has studied this matter from a broad standpoint, considering many plans submitted by the Bureau of Medical Economics as well as those conveyed in resolutions from the floor of the House of Delegates. It reiterates the fact that there is no model plan which is a cure-all for the social ills any more than there is a panacea for the physical ills that affect mankind. There are now more than 150 plans for medical service undergoing study and trial in various communities in the United States. Your Bureau of Medical Economics has studied these plans and is now ready and willing to advise medical societies in the creation and operation of such plans. The plans developed by the Bureau of Medical Economics will serve the people of the community in the prevention of disease, the maintenance of health and with curative care in illness. They must at the same time meet apparent economic factors and protect the public welfare by safeguarding to the medical profession the functions of control of medical standards and the continued advancement of medical educational requirements.

They must not destroy that initiative which is vital to the highest type of medical service.

In the establishment of all such plans, county medical societies must be guided by the ten fundamental principles adopted by this House of Delegates at the annual session in June 1934. The House of Delegates would again emphasize particularly the necessity for separate provision for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, instalment purchase or so-called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.

Your reference committee suggests that the Board of Trustees request the Bureau of Medical Economics to study further the plans now existing and such as may develop, with special reference to the way in which they meet the needs of their communities, to the costs of operation, to the quality of service rendered, to the effects of such service on the medical profession and to the applicability to rural, village, urban and industrial population, and to develop for presentation at the meeting of the American Medical Association in June model skeleton plans adapted to the needs of populations of various types.

Harry H. Wilson, Chairman, California
Warren F. Draper, Virginia
E. F. Cody, Massachusetts
E. H. Cary, Texas
N. B. Van Etten, New York
F. S. Crockett, Indiana
W. F. Braasch, Minnesota

A large number of component county medical societies in various parts of the United States have taken official action endorsing the report adopted by the House of Delegates at its called session. Speaking through their councils or through called meetings of their houses of delegates, several constituent state medical associations have taken similar action.

The Secretary makes grateful acknowledgment of the many courtesies and kindnesses extended to him by the officers and members of official bodies of the Association and of state associations and county societies, as well as by hundreds of individual members.

Respectfully submitted.

OLIN WEST, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The demands made on the various councils, bureaus and departments of the Association and the amount of business transacted by the Board of Trustees and other official bodies were far greater during the last year than in any previous year. At no time in the history of the Association have there been matters of more transcendent importance presented for official consideration and action at the hands of the various official bodies that carry on the work of the Association. In some instances, existing facilities in the Association's offices have been taxed to the utmost, and the situation has been one that has called for extreme exertion on the part of the administrative personnel and for well considered action on the part of the officers, councils, bureaus and members of official groups.

The Association has continued to comply to the fullest possible extent with the provisions of the National Recovery Act and with the pronouncements of the National Recovery Administration with respect to wages, working hours and all other phases of the Association's work on which the National Recovery Act has any bearing.

As will be seen from the Auditor's Report, total general operating expenses, including depreciation, amounted to the sum of $825,781.09 for the year covered by this report as compared with $836,954.04 in the preceding year. Association expenses, including the cost of operation of councils, bureaus and departments and of miscellaneous operations, were $350,297.48 in 1934 as compared with $333,730.40 in 1933. The increased expenditures in 1934 were occasioned by the expansion of the work of various councils and bureaus. Miscellaneous expenses and losses in 1934, including building depreciation, amounted to $139,084.96 as compared with $212,961.40 in the preceding year. The reduction in expenditures included under miscellaneous expenses and losses was due to the saving in the amount of insurance and taxes paid, and in the amount required for legal services, as well as to the reduction of the sum charged against the Directory, which may be accounted for by the fact that there was little or no sale for copies of the Twelfth Edition of the Directory in 1933. There was also a marked reduction in the loss incurred through the publication of HYGEIA.

The total operating income for 1934 was $1,439,751.07 as compared with $1,375,337.99 for the previous year. Interest received from investments amounted to $82,402.41, almost exactly $5,000 more than income from this source in 1933.

Net income for the year was $252,528.02, representing an increase of $164,062.98 over the net income received in the preceding year. This difference is largely accounted for through increases in the amounts received from Fellowship dues and subscriptions to THE JOURNAL, and in income from advertising and from interest on investments, and through reduction in the costs involved in the publication of HYGEIA and in the costs charged against depreciation. During the year, an appraisal of the Association's property was made by the American Appraisal Company, and it was in accordance with the findings of this appraisal that the amount indicated was charged against depreciation. A large part of the increased income from dues and subscriptions came from the payment of accounts in arrears.

An appraisal of the bonds owned by the Association was made at the end of the year and disclosed that the total market value of these securities at that time was greater by the sum of $66,627.13 than the total cost. The Board of Trustees has attempted to pursue a thoroughly conservative policy in the purchase of securities for investment. In a number of instances, premiums have been paid for bonds purchased in order that the securities held by the Association might be of the highest possible quality. Because of prevailing low money rates, the general tendency toward the reduction of interest rates and the high cost of desirable securities, it is quite probable that the amount of interest on securities that will be realized in the next few years will be considerably lower. This will be especiallly true with respect to income received from investments in government securities, which make up the larger part of the Association's investments. The government has, where possible, called for payment practically all of its bonds with interest rates in excess of 4 per cent and has replaced them with others having much lower interest rates.

During a part of the year it was necessary to employ extra help in connection with the publication of the American Medical Directory, and additional employees were needed for various periods of time in the printing department. Because of increased living costs, it was necessary to restore the cut in wages and salaries that was made in 1933. At the end of the year 1934 the total number of employees in actual service was 518.

The Journal of the American Medical Association

THE JOURNAL continued during 1934 the developments begun in previous years. Today it is everywhere recognized as the leading medical publication of the world and as the official voice of the American medical profession. It has kept its readers abreast of developments in the field of legislation, and it has spoken promptly for scientific medicine when the tenets and principles of the profession seemed about to be subjected to assault.

Not only from individuals and medical organizations in this country, but from all over the world come constantly appeals for the use of the facilities and prestige of THE JOURNAL in advancing various medical causes.

Several series of articles published during last year have attracted extraordinary support from readers. Attention should be called, particularly, to a new series on the "Therapy of the Cook County Hospital" and to the special articles arising from the general sessions held as part of the annual session of the Association. The department devoted to questions and answers continues also to receive numerous letters of approval from readers of THE JOURNAL.

Tables 1 and 2 indicate the approximate count of Fellows and subscribers carried on the mailing list of THE JOURNAL, showing the gain or loss of Fellows and subscribers in each state, and the number of physicians receiving THE JOURNAL in each state.

TABLE 1.—*Approximate Count of Fellows and Subscribers on The Journal Mailing List, by States, Dec. 31, 1934; Also Gain or Loss in Each State*

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama	438	195	633	47	..
Arizona	178	57	235	..	15
Arkansas	286	139	425	84	..
California	3,289	2,842	6,131	..	17
Colorado	329	223	552	9	..
Connecticut	911	551	1,462	14	..
Delaware	105	68	173	13	..
District of Columbia	889	670	1,559	29	..
Florida	283	201	484	65	..
Georgia	554	322	876	26	..
Idaho	113	61	174	13	..
Illinois	4,670	2,370	6,040	70	..
Indiana	1,464	827	2,291	28	..
Iowa	1,224	1,021	2,245	18	..
Kansas	709	318	1,027	46	..
Kentucky	649	305	954	7	..
Louisiana	339	228	567	25	..
Maine	259	144	403	23	..
Maryland	794	469	1,263	19	..
Massachusetts	2,775	1,231	4,006	32	..
Michigan	1,949	1,027	2,976	100	..
Minnesota	1,258	691	1,749	..	20
Mississippi	270	101	371	9	..
Missouri	1,618	789	2,307	66	..
Montana	169	93	262	..	4
Nebraska	668	296	964	12	..
Nevada	57	27	84	6	..
New Hampshire	245	88	333	13	..
New Jersey	1,917	1,373	3,290	72	..
New Mexico	139	55	194	..	14
New York	8,253	5,249	13,443	255	..
North Carolina	679	330	1,009	91	..
North Dakota	230	75	305	9	..
Ohio	3,297	1,271	4,568	126	..
Oklahoma	569	258	841	62	..
Oregon	362	253	615	..	7
Pennsylvania	5,045	2,177	7,222	78	..
Rhode Island	342	189	531	17	..
South Carolina	283	177	460	25	..
South Dakota	172	128	300	15	..
Tennessee	618	243	861	27	..
Texas	1,611	789	2,391	116	..
Utah	189	85	274	3	..
Vermont	185	115	300	24	..
Virginia	798	384	1,182	22	..
Washington	695	317	1,012	32	..
West Virginia	541	229	770	7	..
Wisconsin	1,311	567	1,878	..	65
Wyoming	87	47	134	1	..
U. S. Army	...	170	170	1	..
U. S. Navy	...	217	217	13	..
Alaska	14	18	32	7	..
Canada	13	778	791	17	..
Cuba	3	42	45	2	..
Hawaii	86	62	150	..	6
Mexico	9	75	84	6	..
Panama	19	25	44	..	1
Philippine Islands	42	114	156	..	11
Puerto Rico	61	39	100	..	4
Virgin Islands	1	4	5	1	..
Foreign	129	2,854	2,183	111	..

The number of copies of THE JOURNAL printed in 1934 was 4,466,970, while the average number of copies printed weekly was 85,711. The total number of Fellows and subscribers receiving THE JOURNAL, Dec. 31, 1934, was 85,535.

Special Journals

During 1934 the special periodicals issued by the Association have continued to serve the advancement of medicine in highly technical fields. The editors have cooperated in such stringent economies as seemed desirable, doing much to eliminate unnecessary illustrations, profuse tabular material, and verbiage not necessary for suitable understanding of the material presented.

THE ARCHIVES OF INTERNAL MEDICINE initiated as a new feature a series of reviews in various fields in internal medicine.

The Board of Trustees would again tender its appreciation to the editors who have given so fully of their time and effort for the maintenance of the high quality of these publications, and also to such institutions and individuals as have aided in the publication of special articles by bearing a portion of the cost of publication.

The total loss incurred in publication of the special journals for the year 1934 was $14,936.44. The total circulation of these journals, Dec. 31, 1934, was 19,384.

The Quarterly Cumulative Index Medicus

THE QUARTERLY CUMULATIVE INDEX MEDICUS is the only publication of its kind in the world. The mass of detail, the tremendous number of periodicals regularly indexed, the necessity for accuracy, and the discrimination desirable in the selection of publications and titles for indexing make the task of issuing this publication a most difficult one. It is doubtful that any other medical organization in the world, either public or private, could undertake successfully the issuance of this work. The American Medical Association deserves special recognition for supplying the funds necessary and the facilities that are required to bring out this monumental contribution to medical bibliography.

The Library

The package library service continues to provide physicians in communities throughout the United States with the latest available data on problems that concern them. During 1934, 2,816 packages were sent out, an increase of some 25 per cent over the number circulated in 1933. As in previous years, numerous letters of commendation have come to the headquarters office in appreciation of this service.

The packages are especially useful to physicians in small communities who do not have available opportunity for consultation in local libraries.

TABLE 2.—*Physicians Receiving The Journal* *

State	Number Receiving Journal	Physicians in State, A.M.A. Directory	Approximate Percentage Receiving Journal
Alabama	648	2,129	31
Arizona	265	469	56
Arkansas	602	1,899	32
California	5,302	10,450	51
Colorado	817	1,674	49
Connecticut	1,442	2,512	62
Delaware	173	301	57
District of Columbia	1,020	1,851	55
Florida	984	1,849	47
Georgia	946	2,811	39
Idaho	196	398	50
Illinois	6,045	11,256	53
Indiana	2,901	4,949	59
Iowa	1,853	3,141	52
Kansas	1,021	2,153	47
Kentucky	932	2,650	34
Louisiana	697	2,127	32
Maine	407	804	51
Maryland	1,222	2,617	46
Massachusetts	4,006	7,014	57
Michigan	2,420	4,670	52
Minnesota	1,739	3,174	55
Mississippi	371	1,525	24
Missouri	2,307	5,370	43
Montana	258	499	52
Nebraska	894	1,772	50
Nevada	84	139	60
New Hampshire	331	602	55
New Jersey	3,290	6,315	52
New Mexico	194	390	50
New York	13,443	22,612	59
North Carolina	1,009	2,469	41
North Dakota	305	511	59
Ohio	4,568	8,799	52
Oklahoma	843	2,469	35
Oregon	615	1,368	45
Pennsylvania	7,219	12,608	57
Rhode Island	529	997	53
South Carolina	460	1,239	38
South Dakota	300	583	51
Tennessee	861	2,970	32
Texas	2,391	6,679	35
Utah	272	521	52
Vermont	300	517	57
Virginia	1,153	2,659	43
Washington	1,012	2,000	50
West Virginia	770	1,779	43
Wisconsin	1,873	3,302	56
Wyoming	134	237	56

* This table gives the number of physicians (based on the Thirteenth Edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL, and the approximate percentage in each state. Copies to physicians in the United States Army and Navy are not included.

Similar medical package library services have been developed by a number of the state societies and by other organizations in the field. Nevertheless this subsidiary service has not, as indicated in the increase for requests for this material, diminished in any way the demands on the headquarters office for this educational activity.

The periodical lending service, which supplements the package library service, lent 8,333 periodicals to physicians who requested them. The periodicals regularly listed and abstracted in THE JOURNAL, and all those regularly received by the QUARTERLY CUMULATIVE INDEX MEDICUS, are available for such service. This demand represents a 20 per cent increase over the circulation of periodicals in 1933.

The library of the Association also supplied reference service in response to 5,000 individual requests.

The employees' library had a circulation of 5,510; the average daily circulation was 23, the number of borrowers 128.

Visitors from abroad who have seen the development of the package library and reference services of the American Medical Association are enthusiastic in their recognition of the qualities of this work, a type of service not duplicated either in scope or in minimal cost by any other organization.

Hygeia

HYGEIA is recognized today as the only rational publication printed to provide information to the public on matters of health that is interesting, authentic, attractive, and supported by leading organizations in the field of education and the public health. The editorial staff continually exerts itself to advance the quality of the material to new heights.

Series of articles on insects and other parasites of man, the care of the teeth, the hygiene of the eye, and many other topics have been quoted and republished in many places. Publishers of textbooks used in the schools, and leaders of various types write regularly for permission to include material from this magazine in such volumes, thus extending the educational quality of the periodical far beyond its immediate circulation.

A special effort has been made during 1934 to carry to the readers of HYGEIA the interests of the medical profession in matters of social security and medical economics. Reprints from its pages have been circulated through the Bureau of Medical Economics and in other ways.

Schools and libraries continue to represent a large percentage of the circulation of HYGEIA. Moreover, the use of the magazine for projects in study by pupils in grade and high schools indicates the extent to which the health interests of the future generation are being molded by this publication.

The net loss incurred through publication of HYGEIA for 1934 was $2,059.55, as compared with the net loss of $30,127.54 in 1933. Total receipts from subscribers exceeded the amount received from the same sources in the previous year by approximately $30,000, while there was a reduction of a little more than $5,000 in advertising income.

Since HYGEIA is published for the benefit of the lay public, it is perhaps natural that 81 per cent of the subscribers are laymen.

American Medical Directory

The Thirteenth Edition of the American Medical Directory was made available to subscribers, Aug. 7, 1934. The new volume contains the names of 178,516 physicians, including 18,727 new names. The names of 11,473 physicians who died during the interim since the publication of the Twelfth Edition of the Directory were removed and the number of those whose addresses were unknown has been reduced, so that the actual increase in the number of names was 6,167. The new Directory is larger by twenty-six pages than the volume previously published. The total cost of the new edition was greater by $47,394.58 than that of the Twelfth Edition, largely because the publication of the new edition was delayed for twelve months by reason of the unfavorable economic situation. This delay naturally occasioned a tremendous number of changes in addresses, so that it was necessary to reset the type for the entire Directory. Sales receipts at the end of the year 1934 were less by the sum of $33,934.28 than income received. It is hoped that a considerable part of this loss will be made up as sales proceed.

Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau represents thirty-two journals of constituent state medical associations. The net earnings of the Bureau for 1934 were $21,247.06, as compared with $19,266.25 for 1933. Of the earnings of the Bureau the sum of $6,000 was remitted to the state journals concerned. This sum, $1,000 more than was similarly remitted in the previous year, was distributed to the state journals concerned in proportion to the total amount of advertising secured for each of them.

Mailing and Order Department

During the year the Mailing Department handled 153 tons of mail in the third and fourth classes and in miscellaneous second class. This included the material distributed through orders received for pamphlets, booklets, reprints and so on, amounting to 284,777 units, the weekly mailing of THE JOURNAL, and the mailing of other publications. The number of orders received and handled through this department was 77,423.

Of first class mail, 475,937 pieces were transmitted, and of third class mail 1,564,684 pieces. In addition to the material distributed by mail, a large amount was shipped by express and by freight.

Council on Pharmacy and Chemistry

This report marks thirty years of service to the medical profession on the part of the Council on Pharmacy and Chemistry. The first session was held Feb. 11, 1905, and for nearly a third of a century the Council has made notable contributions for the furtherance of rational therapeutics. Its scope has extended to improved methods of teaching materia medica, to the evaluation of new drugs which the physician has been importuned to use, to the education of the profession concerning newer advances in medicine, and to safeguarding public health by bringing forcibly to the attention of the profession, of the public and of legislative bodies the need for corrective measures.

Of the personnel of the Council, four members of the original group who attended the first meeting in Pittsburgh in 1905 still remain active members of the Council in 1934; another one of the original group, though no longer a member of the Council, still takes an interest in its work.

A comparison of conditions prevailing previous to 1905 and those of today reveals strikingly the progress that has been possible largely through the work of the Council. The Council is so busily engaged in the work which is before it that its members cannot devote time to making speeches before medical meetings or to other methods of bringing the work of the Council closer to the profession than through the columns of THE JOURNAL. It is to be regretted that there are some members of the profession who have not heeded the warning on the dangers of proprietary domination of therapeutics. The Board of Trustees recently passed a resolution expressing the hope that at meetings of medical societies, hospital staffs and various other conferences there will be emphasized the benefits which will be incurred by the profession in increasing measure if the profession will be still more attentive to the work of the Council. Physicians when asked to try a new remedy might well inquire whether it has been accepted by the Council on Pharmacy and Chemistry. Any honest manufacturer, small or large, can have his products considered by the Council. The Council is unique in that no remuneration whatever is accepted for its considerations and it is entirely free from any domination or advertising entanglements.

The work of the Council has expanded to an extent that has made it necessary to enlarge its office personnel. Within two years the amount of work has increased by 50 per cent. The reason for this is that the efforts of the Council are being recognized and appreciated more and more by physicians, and this recognition is directly reflected in the desire of pharmaceutical houses of the better grade to obtain Council acceptance of their products. Each year finds it more difficult for the less progressive or less conscientious firms to sell drugs to the medical profession and particularly to institutions.

PUBLICATIONS OF THE COUNCIL

New and Nonofficial Remedies.—This book maintains its leadership in the field of authoritative information on nonofficial drugs. During the past year approximately 6,300 copies of New and Nonofficial Remedies were distributed to students of materia medica and pharmacology in class A medical schools. The revisions of N. N. R. for the 1935 edition have been extensive but not nearly so extensive as will be next year's revision

when the new Pharmacopeia becomes official. The 1935 volume contains many additions newly admitted in 1934, while older drugs have been omitted as recent advances have rendered them obsolete. The standards for vitamin A and D preparations have been considerably revised, based on the interim revision of the U. S. Pharmacopeia. The Council decided, however, that preparations included in N. N. R. must exceed by a certain amount the minimum requirements of the U. S. Pharmacopeia so far as vitamin A is concerned; the vitamin D content is the same. A special statement sent out on this subject has commanded wide attention. The consideration of antiseptics has been to the fore in the past year and much work has been done by the Council's referee on this subject, in order that the status of products in N. N. R. may be further brought into harmony with the progressive scientific evidence dealing with bactericides and bacteriostatic agents. Biologic products also have demanded consideration, though relatively few of the newer preparations have been found worthy of admission to N. N. R. During the year a number of interesting new drugs were accepted. Among these were Carbarsone, an arsenical used chiefly in the treatment of amebiasis (the Council published a special report on this drug, supplementing the preliminary report of 1932); Hippuran and Diodrast, two different types of urographic contrast mediums; Carotene, the precursor of vitamin A; Dilaudid, a substitute for morphine; Neo-Synephrin Hydrochloride, which has a number of advantages as a vasoconstrictor over synephrin tartrate; Diothane, which represents a type of local anesthetic entirely different chemically from any heretofore accepted for N. N. R.; and Scillonin, an example of the development of a drug that was on the market as long as thirty years ago, sold with claims that could not be countenanced by scientific medicine.

Reports of the Council.—The Council has continued publishing adverse reports for the benefit of the medical profession. They were on such products as Oleothesin, Bismoid, Asthmolysin and Spasmolysin, Vita-Cell, Di-Hydranol, Iodochlorol, and Yeast Vitamin-Harris. These, however, represent but a small proportion of the number of adverse reports, as many of the products not accepted were withdrawn from the market or were not sufficiently important to warrant publication of reports in THE JOURNAL. These will therefore appear in the Annual Reprint of the Reports of the Council on Pharmacy and Chemistry. Always on the agenda are products on which adverse reports have been made but which the Council has agreed not to publish if the manufacturer in turn agrees not to promote the sale of the product pending efforts to obtain further evidence for the consideration of the Council.

Among the more noteworthy special and preliminary reports published by the Council of a particularly informative nature was that on Phenylmercuric Nitrate (Basic), canvassing the work that has been done on this interesting substance; also the statement to the medical profession on the relation of amidopyrine and barbital derivatives to granulocytopenia. Since the latter statement has been published, there seems to be a much better understanding on the part of the profession concerning the part played by these two drugs as possible causative factors in this disease. Another carefully considered special report was that on Sterility of Ampules, based on a thorough questionnaire sent to manufacturers. It seems quite likely that as a result of this report all manufacturers will soon be making and testing their products according to a uniform procedure, which will obviate practically all possibility of contamination. The Council published other preliminary reports on drugs the status of which was still somewhat doubtful. Among these were the reports on Pertussis Vaccine, Cysteine Hydrochloride, Gastric Mucin and Anthralin.

"Useful Drugs."—"Useful Drugs" underwent a thorough revision during 1934, so that the content of the book is entirely up to date. A less extensive revision will be made in 1936 to bring it into harmony with the new issue of the Pharmacopeia so far as titles and collateral information are affected.

REVISION OF FOOD AND DRUG ACT

The Council through its special committee on proposed food and drug legislation gave careful attention during 1934 to the formation of a "platform" expressing its position in regard to drugs. This platform and also a similar one issued by the Committee on Foods was endorsed by the Board of Trustees and published in THE JOURNAL, Jan. 12, 1935, page 125.

SPECIAL INVESTIGATIONS

Special investigations are under way on Bacillus Acidophilus preparations, which have been in a somewhat unsettled state. Under the direction of the referee for these preparations an extensive examination of market specimens was made. As a result of this work, in conjunction with a careful study of the literature, the Council decided to retain B. Acidophilus Milk in N. N. R. On the other hand, examinations and evidence indicated that the promotion of these products in the form of blocks or non-milk-containing beverages was ill advised. Therefore reports on the omission of the latter type of products from N. N. R. were published.

The Council is about to issue a report on the sterility of thromboplastic substances, based on bacteriologic examinations of market specimens obtained from various cities in the United States.

USE OF NUMBERS IN NAMES

In last year's report there was discussed the decision of the Council concerning the removal of numbers from the names of drugs. This was done to prevent the confusion of numbers in prescribing. The Council is pleased to report that, in the case of all accepted products having numbers in connection with the name, the manufacturers, with one exception, agreed to omit the numbers.

The Council is being called on more and more to pass on names for new therapeutic products. The matter of naming a new preparation intended for therapeutic use is so involved that it seems necessary that there should be a central body for this consideration. In this capacity the Council has served a useful purpose. An example of the erroneous naming of products is the case of crystalline vitamin C. The chemistry of this product was worked out by Szent Györgyi, so that it could be obtained in pure form and of a known composition. It was Györgyi's right to name the product, but unfortunately he chose the name "Ascorbic Acid." The name Ascorbic Acid is therapeutically suggestive, and though it is not as bad as some others for therapeutic products, it would be inconsistent of the Council to accept any therapeutically suggestive name. Therefore the Council was obliged to coin a new name for the product—Cevitamic Acid, which name has been adopted by American manufacturers. The firm, however, is permitted to use for one year the subtitle "Introduced as Ascorbic Acid."

SPECIAL ARTICLES

For many years bacteriophage preparations have kindled the imagination of workers in bacteriology. During this time there have been attempts by practically all pharmaceutical houses to place such products on the market. The therapeutic indications have never been clearly defined and the Council has not felt justified in accepting any bacteriophage preparation for inclusion in N. N. R. Because there was no well formulated statement on the evaluation of bacteriophage preparations, the Council asked one of its members, Dr. Stanhope Bayne-Jones, to undertake the preparation of such a report. An excellently comprehensive "special article" by Drs. Monroe Eaton and Stanhope Bayne-Jones was published in three issues of THE JOURNAL in 1934. The contribution has been exceptionally well received.

Approximately ten years ago there was published under the auspices of the Council a series of articles on Glandular Therapy. This series was later reproduced in book form (two separate editions), the entire book comprising ninety-eight pages. The knowledge in this field grew so tremendously that in 1928 it was necessary to withdraw the book from circulation because it no longer covered the field adequately. The demand continued, and in 1934 the Council, in cooperation with THE JOURNAL, invited a number of prominent medical men to contribute articles to a series on Glandular Therapy. This series is by far the most extensive ever published under the auspices of the Council and is to appear during the current year. When completed it will be reproduced in book form, containing more than 400 pages.

The Chemical Laboratory

The constantly growing work of the Council on Pharmacy and Chemistry and the complex nature of current problems with which the Chemical Laboratory must deal have resulted in imposing unusually heavy burdens on its personnel during the last two years. When a new product is submitted to the Laboratory, it is necessary to make careful investigations to determine its composition and structure. If it is found to be satisfactory from a chemical point of view and is accepted by the Council for inclusion in New and Nonofficial Remedies, it is then necessary that suitable standards be elaborated. These standards are established with a view to insuring the highest possible purity in order that the public interest may be properly protected, and an effort is made to avoid creating undue hardships on producers.

Among the important new chemotherapeutic products submitted and studied during the year were Dilaudid, a narcotic somewhat similar to morphine; Diothane, a local anesthetic of a materially different type from any heretofore described in New and Nonofficial Remedies, and Larocaine, a local anesthetic. A great deal of careful investigation and laborious effort were required in preparing suitable standards for these products.

Carotene (provitamin A) was the first of the crystalline vitamin or vitamin-like products examined by the Laboratory involving the use of absorption spectrum methods. In cooperation with the manufacturer, suitable standards were outlined. Another vitamin product, introduced abroad as ascorbic acid and now known in the United States under the nonproprietary term of cevitamic acid, was studied, and standards were elaborated. This product in pure form is crystalline vitamin C, and a description of the optical properties of the crystals is included in the standards.

Scillonin, a glucoside preparation from squill, was further studied during the year, and proper controls and standards for this preparation have been defined by the Laboratory and adopted by the Council on Pharmacy and Chemistry.

Two types of arsenicals have been under investigation. One of these is a new product, a purified form of arsenoxide, first described by Ehrlich but more recently subjected to an exhaustive therapeutic investigation. The other important arsenical for which standards have been elaborated is Carbarsone, recently accepted by the Council for inclusion in New and Nonofficial Remedies.

The investigation of barbital preparations has been continued because of the greatly increased use of these products and because a new barbital derivative has been added to the list each year during the last decade.

Vasoconstrictive substances have also required attention at the hands of the Laboratory staff, among these having been Neo-Synephrin Hydrochloride, an ephedrine-like substance, and ephedrine. The development of refinements in the manufacture of ephedrine and newly available knowledge concerning its chemistry have made it necessary for the Laboratory to reinvestigate this product with the idea of evolving standards that will be more in keeping with recent developments. Within the last year, another form of the ephedrine base has been brought out, the hemihydrate. The alkaloid may now be obtained either in the form of anhydrous ephedrine or in the form of hydrated ephedrine.

Certain new bismuth compounds have been investigated, and continued attention has been given by the Laboratory to dextrose solutions and to solutions of invert sugar. Studies have also been undertaken, for the purpose of making proper revision of standards, on certain calcium compounds and other important therapeutic products, and a large number of other substances have been studied.

The Laboratory staff has continued its cooperation with various departments of the Association, and members of the staff have appeared at the meetings of several scientific organizations and have participated in their programs.

Council on Physical Therapy

There is undoubtedly a more general appreciation of the value of physical therapy methods in the treatment of disease, and it is believed that the investigations and studies of the Council on Physical Therapy pertaining to the efficacy of heat, massage, exercise and other therapeutic agents are, to a considerable extent, responsible for the more general acceptance and application of physical therapy methods. The Council believes that physical therapy has a place in all branches of medicine and does not advocate that it be considered a distinct specialty. It believes that it is desirable that instruction in physical therapy should be incorporated in the courses of instruction in the broad field of therapeutics and that the subject should be properly taught in medical schools. The Council has therefore brought this matter to the attention of the Association of American Medical Colleges. The Council also believes that much can be done to extend knowledge concerning the value of physical therapy and to increase the practical application of physical agents through extension courses, and to this end it has undertaken to develop a plan whereby the services of competent speakers may be made available to county and state medical societies.

During the year, seventy reports pertaining to submitted products were prepared, forty-seven of which indicated acceptances by the Council while twenty-three indicated rejections. Not all of the reports pertaining to rejected products were published, since some of them were held in abeyance pending improvement of the products or essential changes in the nature of advertising in order that these products might be made acceptable. Fifteen articles on newer methods of physical therapy were published during the year. The Council has prepared a statement setting forth its requirements with respect to the acceptance or rejection of abdominal belts, supports and similar devices, and it is planning to prepare a similar statement of requirements applying to shoes, posture appliances and other orthopedic devices. In the field of ultraviolet therapy considerable difficulty has been encountered, because no adequate dosage meter for determining the strength of ultraviolet radiation has heretofore been available. During the past year two reliable meters have been investigated and accepted by the Council. Investigations of ophthalmologic appliances have progressed in a fairly satisfactory manner, and reports pertaining to several such appliances have been published. The Council desires to make grateful acknowledgment of the aid received from the Committee on Standardization of Instruments and Drugs of the Section on Ophthalmology of the American Medical Association in connection with the appraisal of ophthalmologic devices. The Council has also continued its work in the investigation of aids to hearing and of instruments for diagnosing degrees of deafness. The consideration of radon and radium products has been continued, and studies of the physical characteristics and therapeutic efficacy of so-called short wave diathermy are now being carried out.

Bureau of Medical Economics

Interest and activities in the field of medical economics during 1934 were sharply focused on insurance as a method of providing medical and hospital care. For many years the medical profession has been aware of the sickness insurance systems of Europe. Even though all physicians in the United States have not been thoroughly conversant with every detail of foreign sickness insurance, the subject has on several occasions been given serious consideration by the House of Delegates.

Repeatedly that body has recorded its opposition to any form of state medicine or compulsory sickness insurance operated or controlled by the state.

The interest in and the efforts to develop insurance plans as a means of providing medical services or distributing their costs had been largely sporadic, or at most epidemic, until about two years ago, when the Committee on the Costs of Medical Care, in its Majority Report, recommended insurance as a means of equalizing the burden of the cost of medical care on low income groups.

Since the medical profession in general was not sufficiently impressed with the committee's Majority Report to accept its recommendations, certain interests and individuals outside the medical profession became the self-appointed champions of the sickness insurance cause in the United States. The persistent propaganda poured forth by these interests, represented by certain foundations, is too well known to need detailed description here.

In order that the most recent authentic data might be available for the medical profession, the Board of Trustees directed that a study be made of sickness insurance abroad. This study, entitled "A Critical Analysis of Sickness Insurance," was completed and published in the April 1934 issue of the AMERICAN MEDICAL ASSOCIATION BULLETIN. Since that time more than 15,000 reprints of this report have been distributed to state and county medical societies, individual physicians and other interested groups and individuals.

In September 1934 the American Association for Social Security announced that a state sickness insurance bill prepared by that organization would be introduced in as many state legislatures as possible during the sessions beginning in January 1935. An analysis of this bill, which had one revision at the hands of the authors, appeared in the AMERICAN MEDICAL ASSOCIATION BULLETIN and reprints were sent to the secretaries of all state medical societies and many county medical societies. Requests for this analysis have been received from manufacturers' associations and many individual physicians.

Toward the autumn of 1934, the demand for information on sickness insurance was so great that other reports, discussions and reprints were prepared by the Bureau. Some of these reprint articles had previously appeared in the AMERICAN MEDICAL ASSOCIATION BULLETIN, and one had appeared in HYGEIA. It has been necessary to reprint these articles several times to supply the demand for them. The distribution given below is approximately correct:

	A.M.A. Bulletin & Hygeia Distribution	Reprints
Critical Analysis of Sickness Insurance.....	60,000 plus	12,000
Sickness Insurance Catechism.....		30,000
Sickness Insurance not the Remedy (First published in the A.M.A. Bulletin in June 1934)	60,000 plus	20,000
Health Insurance in England and County Medical Plans in the U. S. (First published in A.M.A. Bulletin in October 1934).....	60,000 plus	7,500
Sickness Insurance and Sickness Costs (First published in Hygeia in December 1934)....	80,000	10,000
Handbook on Sickness Insurance, State Medicine, and the Costs of Medical Care.....		2,000

To make it possible for the American Medical profession to have available authentic information on sickness insurance, the Bureau of Medical Economics has assembled from all known sources and is continuing to collect documents, reports, articles, statistics and books on all phases of the sickness insurance question. This material is in several foreign languages as well as in English; some of it has been difficult to obtain, and but few of the documents are duplicated. Although the material is in use almost constantly, it is available to any member of the Association who desires to study the original documents in the office of the Bureau. Assistance will be given to those interested in such a study and the Bureau will be glad to find the references in which they are most interested. The Bureau will be especially glad to have visits by chairmen or members of medical economics committees.

The Handbook on Sickness Insurance was first printed in December 1930 to meet the demand on the part of high school and college students for source material with which to prepare debates on state medicine and sickness insurance. The book contained either entire articles or abstracts of arguments presented by well known authors both for and against state medicine and sickness insurance. During August and September 1934, this handbook was revised and rearranged with much new material added. It is now being used not only by high school and college students in preparing debates and theses but also by many physicians in preparing lectures and statements on the subjects covered in the handbook. This publication is a 182 page answer to the criticism, sometimes heard, that the publications of the American Medical Association present only one side of the argument on state medicine and sickness insurance.

GROUP HOSPITALIZATION

Since 1931, group hospitalization has been spreading throughout most sections of the United States. At first, group hospitalization was urged by commercial organizations whose interest in hospital care was secondary to the profits they could derive by promoting, organizing or conducting membership drives. Hospital administrators gradually shifted their attention from the commercial proposals to plans and contracts prepared, marketed and controlled by the hospitals themselves.

The House of Delegates has never recorded its approval of or opposition to the prepayment method of providing hospital care, per se. The Judicial Council in 1931 reported as follows on plans involving a combination of hospital and medical services:

> Within the last year, some community hospitals have announced their intention to provide medical, surgical and hospital service to families on a flat rate basis. In at least one instance, such service has been offered to families for $35 a year, irrespective of the number of members in such families. In most instances, certain exceptions are made, in that persons with chronic diseases are not entitled to receive the benefits of the plan, and obstetric service is not supplied without additional compensation. The members of the Judicial Council doubt that it is wise to lead the people in any community to believe that all necessary medical and hospital service, even though chronic diseases and obstetric care be excepted, can be provided for the average family for $35 a year. In the cases presented to it, the Judicial Council has advised against the adoption of such plans by community hospitals because it is believed that they are not economically sound, in that they may be unfavorably affected by conditions entirely beyond control under which contracts cannot be fulfilled. There are other aspects of the matter that readily present themselves for consideration involving the interests of physicians in the community who cannot participate in such plans.

The promoters of group hospitalization declare that the schemes they propose are merely service contracts. It was pointed out, in a study made by the Bureau of Medical Economics, published in the AMERICAN MEDICAL ASSOCIATION BULLETIN for October 1933, that group hospitalization contracts are insurance contracts. But the relationship of hospitals to state insurance departments and law observance, and the liability which a particular form of contract may impose on the contracting hospitals, are not the only items of importance in this newer method of marketing hospital services.

The nature of the contract is of vital concern to the medical profession. If hospitals are permitted to include medical services in their contracts for hospital care, the avenue is opened and the precedent is set for the practice of medicine by hospitals. Furthermore, it is possible that some hospitals that should be closed may, by the assistance of a group hospitalization scheme, continue to serve the public badly.

At present there is a wide variation in the status of group hospitalization schemes. Some are being operated with the sanction and active assistance of county medical societies; others are being operated in communities in which the county medical societies maintain a position of noninterference but close observation; in some places the medical societies have succeeded in having hospitalization contracts drawn so as to exclude all medical services, while in other sections the group hospitalization contracts include varying amounts of medical services and thus make it possible at a later date to add more and more medical care under the guise of hospitalization. There is grave doubt that any group hospitalization schemes are using actuarily sound bases for premium rates.

The theory of the insurance principle in the provision of hospital care appears to be sound, but in the application of this principle to hospitalization, as in the field of sickness insurance, numerous opportunities for perversion and abuse are offered and many of the dangers inherent in sickness insurance practice are introduced. The most important of these dangerous tendencies have already been mentioned; viz., failure to limit the contract coverage solely to hospital care, and the possibility of keeping active some undesirable institutions that, for the public good, should be closed.

The Bureau has a record of fifty-five group hospitalization plans that are now operating or have been discontinued. There are forty-four more plans that have been proposed but as yet are not operating.

FEDERAL PROGRAM ON ECONOMIC SECURITY

As soon as it was learned that the President's Committee on Economic Security proposed to include medical services in the economic security program, the facilities of the American Medical Association were offered to both the Secretary of Labor, Hon. Frances Perkins, chairman of the committee, and Mr. Edwin E. Witte, executive director, for such assistance as might be given in the proposed studies. It was announced that medical interests would be recognized and safeguarded by the appointment of a medical advisory board composed of distin-

guished physicians and surgeons to consider the medical phases of the economic security program, but it was stated emphatically that no medical organization would be allowed representation on the board and no announcement of the names of the members of that board would be made public until just before the first called meeting of the board. Before the close of the first meeting of the Medical Advisory Board in Washington, Nov. 15, 1934, it was agreed that the Technical Staff should be enlarged to include Mr. Michael Davis, Mr. Nathan Sinai, Mr. A. M. Simons and Dr. R. G. Leland, as associate members.

The Medical Advisory Board was called for two meetings, Nov. 15, 1934, and Jan. 29, 1935. The Technical Staff met with the Medical Advisory Board on these dates and held two additional meetings Dec. 12, 1934, and Jan. 19, 1935.

Throughout the work of the Technical Staff on the President's Committee on Economic Security in preparing a "Program for Social Insurance Against Illness," the associate staff members from the Bureau of Medical Economics of the American Medical Association offered comments pertaining especially to technical organization and administrative details of the proposed specifications for a federal sickness insurance act.

Since it was clearly pointed out by Secretary Perkins and Mr. Edgar Sydenstricker at the outset that the question of merit concerning a sickness insurance system for the United States was not open for discussion by the Technical Staff or the Medical Advisory Board, but that these groups were charged with the task of preparing the best possible proposal for the United States, in the event that sickness insurance was to become a reality, the participation of the associate members from the Bureau in the work of the Technical Staff might appear to be altogether in conflict with the established policy of the House of Delegates of the American Medical Association. However, in the work of the Technical Staff the associate members from the Bureau of Medical Economics consistently maintained the position that whether any points in the discussions were passed or agreed on, with or without reservations, the members of the Bureau, R. G. Leland and A. M. Simons, reserved the right to submit further observations, objections and reservations after study of the amended or final report. Moreover, it was repeatedly asserted that the participation in these discussions and studies by members of the Bureau of Medical Economics was in no way binding on any officer, department or body of the American Medical Association. It was agreed by all members of the Technical Staff that the American Medical Association should be entirely free to challenge the entire proposed sickness insurance program in any way that might seem proper, after the final report of the Committee on Economic Security had been acted on by the President and his decision had been announced.

COUNTY MEDICAL SOCIETY PLANS

In certain sections of the United States, county medical societies have been operating plans for the care of the indigent for more than thirty years.

The growing interest of social workers, philanthropists and foundations in the development of medical plans, services and institutions under lay control has caused an increasing apprehension and unrest in the medical profession. Adhering to the premise that medical services should be controlled by physicians, since by reason of training, licensure and experience they are the only persons competent to judge the necessity for and quality of medical care, medical societies throughout the United States have begun the development of professionally controlled medical services for people of low incomes, as well as the indigent.

Encouraged by the "Ten Principles" adopted by the House of Delegates in Cleveland in 1934, and firm in the conviction that complete medical care for a community can be made available without state control, about one hundred county medical societies are now conducting or are about to initiate medical service experiments to demonstrate that American medicine need not follow the pattern of foreign sickness insurance schemes and practices.

Several of these county medical society plans appear to be gaining rapidly in favor with the public and in approval of the medical profession. Critical appraisal of these efforts should, however, be deferred until sufficient time has elapsed to provide for adjustments and perfection of the plans according to cumulative experience.

CONTRACT PRACTICE

Contract practice continues to hold an important place in medical economics problems. Although the Bureau of Medical Economics files will probably never show a complete census of all contract practice organizations or schemes, there are on record 748 such schemes, either proposed or in operation, some of which have been discontinued either voluntarily or because of court action. The California State Board of Medical Examiners has been particularly active in assisting the courts to catch up with contract practice fakers.

COLLECTION AGENCIES

Collection agencies and the collection type of finance companies and corporations continue to be of considerable annoyance to physicians. Notwithstanding the articles that have appeared frequently in THE JOURNAL and the BULLETIN, physicians continue to be duped by glib-tongued, high-powered collection agency salesmen, who promise results impossible of attainment and often succeed in maneuvering the physician into signing a one-sided but within-the-law contract. In the files of the Bureau of Medical Economics there is a record of 1,132 collection agencies that handle medical accounts. The Bureau reprint "Collecting Medical Fees" deals with this subject.

HEALTH AND ACCIDENT, LIFE, CASUALTY AND MALPRACTICE INSURANCE

Many requests come to the Bureau for information concerning insurance companies writing life, health and accident, casualty or malpractice contracts. Data in these fields are secured from the most authentic sources and are forwarded to inquirers as confidential. Although it is impossible for the Bureau to make decisions for individuals as to the choice of an insurance company, unless there should be but one company in a stated field, it is urged that persons buying insurance contracts take the time to study or investigate the contract provisions, satisfy themselves as to the financial standing of the company, and determine whether the company is licensed in the state in which the purchaser is a resident.

The Bureau has made some investigation of and had correspondence relating to 198 insurance companies of various types.

CARE OF THE INDIGENT SICK

In October 1933 a schedule was sent to state medical society secretaries to secure data pertaining to the medical care of the indigent. In April 1934 another schedule was sent to the secretaries of state medical societies asking for the details of organization and the manner of operation of the federal emergency relief plan for the care of the indigent.

Considerable research was conducted to find, if possible, the basis of the customs, methods and legal provisions on which the present system of medical care for the indigent rests.

A somewhat different approach to the status of federal emergency relief was made by Dr. W. C. Woodward, director of the Bureau of Legal Medicine and Legislation, who also sent a schedule to secretaries of state medical societies requesting information of a somewhat different nature than that requested by the Bureau of Medical Economics.

All available information was assembled in a report entitled "Care of the Indigent Sick." That portion of this report which deals with emergency relief measures and methods is accurate only as of December 1934, when the report went to press. Several changes in the state and local emergency relief organizations and methods have been reported since that time.

It was hoped that this report would serve to show the need for and indication of some methods by which the medical care for the indigent might be improved.

DISTRIBUTION OF PHYSICIANS

During the time that could be found in the midst of other work, a study was made of the distribution of physicians [illegible] in the 1931 American Medical Directory. The 156,[illegible] cians listed have been arranged in [illegible] to geographic distribution, [illegible] and age. Graphic presentations [illegible] be found in fifteen charts. The [illegible]

of practice has not been completed but will appear later as a supplement to the main report.

Several studies of the distribution of physicians have been made. The first of these studies was made by Myers and Harrison and was published in 1924 under the auspices of the General Education Board. Other studies of a similar nature have comprised only single states or cities. As far as is known, the analysis just completed by the Bureau of Medical Economics represents the most complete and detailed study to date.

COUNTY MEDICAL SOCIETY AND WORKMEN'S COMPENSATION FEE SCHEDULES

Since March 1931, when the Bureau was established, an effort has been made to collect fee schedules from county medical societies. Thus far the Bureau files contain fee schedules from 383 county medical societies in forty-four states and the District of Columbia and Panama. These schedules have been combined to form a composite list of all the items enumerated. This composite list contains 530 items. Such a schedule is entirely too detailed for practical purposes. For reference work the fees mentioned in the 383 schedules have been arranged to show the minimum and maximum in each state represented. For the entire number of schedules a weighted average was taken for comparison with individual county fees on any particular item.

Since fee schedules, where deemed advisable, must be based on local conditions, it is not the intention of the Bureau to suggest any nation-wide uniformity. County medical societies should establish their own lists based on a careful study of local factors.

It is not contemplated that the Bureau information on this subject will be published.

In its report entitled "Medical Relations Under Workmen's Compensation," published in March 1933, the Bureau of Medical Economics included some of the more commonly used workmen's compensation fee lists. The complete workmen's compensation fee schedules for eighteen states are on file in the Bureau, and with these, as with the county medical society fee schedules, a weighted average has been taken for the eighteen states with which to compare separate state items.

Workmen's compensation fee schedules show some wide variations on certain of the more difficult medical and surgical procedures. When these items in the workmen's compensation schedules are compared with the county medical society schedules in the same state, there are again wide differences.

It is our opinion that the responsibility for securing modification of these schedules, if it is thought desirable, should rest with the medical profession in the several states.

UNIVERSITY AND COLLEGE STUDENT HEALTH SERVICE

The study of health services in colleges and universities has progressed as rapidly as possible. Because of the relatively greater importance of other work, it has been necessary to give this study a place of secondary importance.

A preliminary inquiry sent to 329 colleges and universities brought replies from 294 stating that these colleges had student medical services, and from nineteen, that these colleges did not maintain such services. Another schedule was then sent to those colleges having student medical services.

To date, 184 colleges and universities have returned the schedule filled in. The analysis and tabulation of replies and a report of the findings will be completed as soon as possible.

GENERAL ACTIVITIES

During 1934 the director appeared before six state medical societies, one state dental society, five county medical societies, and four other groups. During the year twenty-six addresses were delivered before nearly 5,000 physicians, and twenty-eight conferences were attended at which 755 physicians were present.

PLANS FOR THE PRESENT YEAR

1. There seems to be no way in which to predict a stability of medical economics interests, or the importance which different phases of medical economics may assume. At present it seems likely that much of the effort of the Bureau will be required for an indefinite period in the field of sickness insurance.

2. The study of health services in colleges and universities will be completed.

3. There is an increasing demand for information on medical services in industry. An attempt will be made to collect data on this subject.

4. An effort will be made to keep the Bureau files up to date on the subject of state and county medical society activities with special reference to medical economics.

SCHEDULE ON MEDICAL ECONOMICS

Date....., 1935

To: The Bureau of Medical Economics, American Medical Association, Chicago.

MEDICAL PHASES OF RELIEF ADMINISTRATION

1. Has a definite agreement been concluded between the State Medical Association and the Relief Administration?
2. If not, what were the obstacles to forming an agreement?
3. If an agreement has been made, how long has any definite arrangement been in actual operation?
4. How many county societies are working under this agreement?
5. Have payments been made regularly to physicians for their services in accordance with this arrangement?
6. What arrangements, if any, have been made concerning clinics?
7. If clinics are used to supply medical care under the Relief Administration, what are the arrangements made with physicians serving in these clinics?
8. What is your opinion as to the effects on the medical profession and the public of the effort to supply medical services under Rules and Regulations No. 7 and succeeding arrangements in connection with federal relief? A rather full reply would be appreciated.

SCHEDULE ON MEDICAL ECONOMICS

Date....., 193..

To: The Bureau of Medical Economics, American Medical Association, Chicago, Illinois.

.....State Medical Society, with headquarters at

City .....State.....
President .....Address.....
Secretary .....Address.....

D. Care of the Indigent Sick

1. What is the legally provided method of furnishing medical care to the indigent in your state?
2. If your state has published a summary of the poor laws, where may a copy be obtained?
   A. What is the governmental unit charged with the provision of medical care for the indigent? (Name of official or body)
      (a) County
      (b) Township
      (c) City
3. What standards of indigency have been established?
4. What is the method of payment for medical care for the indigent?
   A. Contract with individual—
      (a) County physician
      (b) Township physician
   B. Are they paid for full time or part time services?
5. What are the duties of such employed physicians? (Full or part time)
   (a) Care of institutional poor (Jail, poorhouse, children's homes or orphanages)
   (b) Outpatient (home) care
   (c) Health officers
6. How fully do employed county or city physicians meet the local demand?
7. What arrangements are made to pay for medical care in addition to that furnished by County, City or Township physicians?
8. Have any County Medical Societies in your state contracted with county or city officials to render medical care to indigents? (If so, please give list of such county medical societies.)
9. What actions have County Medical Societies taken with respect to medical care of the indigent, aside from such contract?
   (a) Established fee schedule?
   (b) Cooperation with authorities.
   (c) Any other actions.
10. What changes have been made in methods of medical care for indigents during the past four years?
11. Is the present system satisfactory?
12. Was it satisfactory before 1929?
13. What are main defects?
14. Has the State Medical Association or any County Medical Society made any special study of the care of indigents?
    A. If so, is the result of the study or studies available?
15. What, if any, arrangements have been made by the State Medical Association or County Medical Societies with emergency relief bodies? (For example: The Federal Emergency Relief Administration.)

Please send complete file of regulations, forms used, contracts, agreements, rules of procedure, etc., for the Bureau of Medical Economics files.

Distribution:
Secretaries of State Medical Societies

Bureau of Legal Medicine and Legislation

FEDERAL LEGISLATION IN GENERAL

When the last report of the Bureau of Legal Medicine and Legislation was written, the second session of the Seventy-Third Congress was in progress. No legislation of interest to physicians was enacted after that report was made.

The Seventy-Fourth Congress convened in its first session, Jan. 3, 1935, and is still in session as this report is being written

(March 29). Various bills of interest to the medical profession are pending, among them bills looking toward the establishment of "social security," with the possibility of the establishment of a federal-state system of health insurance; food, drug and cosmetic bills, and a bill for the continuance of relief work under the Federal Emergency Relief Administration, with every prospect of an extensive program of public works in that connection, calling for an increase in the number of federal employees entitled to medical services under the United States Employees' Compensation Act. The more important of these bills are discussed later.

STATE LEGISLATION IN GENERAL

In 1934 the legislatures of nine states met in regular sessions, and twenty-eight special sessions were held in these and other states. During the current year the legislatures of forty-three states have already convened in regular sessions. In two of the states in which regular legislative sessions have been held, special sessions also have been held, and special sessions have been held in two other states. All bills of medical interest introduced in all these legislatures were studied and appropriate notices of their introduction, with analyses of the bills when indicated, were sent to the presidents, secretaries and chairmen of the legislative committees of the interested state medical associations. Abstracts of these bills were published in THE JOURNAL, with the reports of their progress.

A survey of all legislation of interest to the medical profession considered by state legislatures during 1934 was published in the AMERICAN MEDICAL ASSOCIATION BULLETIN, November 1934. On the whole, little legislation of interest to the profession was enacted. No legislation relating to healing cults was added to the statute books. A hospital lien law was enacted in Iowa. New Jersey's lien law was amended so as to authorize liens for physicians as well as for hospitals.

Most of the legislatures that convened in 1935 in their regular sessions are still in session as this report is being written (March 29). It would be productive of little good to discuss in detail the various measures now pending. A hospital lien law has been enacted in North Dakota, and bills to authorize such liens are pending in other states. Basic science laws are pending in three states. Amendments to the medical practice acts of Arkansas and Oregon have been adopted. Vermont has amended both its chiropractic and its osteopathic practice acts. Arkansas and Colorado have forbidden the retail sale of barbital and similar hypnotic drugs except on the prescription of licensed physicians, dentists and veterinarians. The outstanding feature of pending legislation is, however, the Uniform Narcotic Drug Act, formulated by the National Conference of Commissioners on Uniform State Laws and approved by the American Bar Association and the American Medical Association. This act will be discussed later, together with some of the other more important pending state legislation.

Note: Since the foregoing section of the report was written, there have been enacted a basic science act in Iowa and a naturopathic act in Arizona.

FEDERAL HEALTH INSURANCE

In a message to Congress, June 8, 1934, the President announced as one of the main objectives of his program the establishment of "the security of the men, women and children of the nation against certain hazards and vicissitudes of life." To formulate that part of his program relating to this matter, the President appointed a Committee on Economic Security. On Jan. 17, 1935, the President submitted to Congress the report of that committee and recommended legislation to establish unemployment compensation and old-age benefits; to authorize federal "grants" to states to aid homeless, neglected, dependent and crippled children; and to provide additional federal aid to state and local public health agencies and to strengthen the United States Public Health Service. With respect to health insurance, the President said:

> I am not at this time recommending the adoption of so-called "health insurance," although groups representing the medical profession are cooperating with the Federal Government in the further study of the subject and definite progress is being made.

The President's Committee on Economic Security, however, in its report to the President, which he transmitted to Congress, was outspoken on the subject of health insurance, saying:

> The committee's staff has made an extensive review of insurance against the risks of illness, including the experience which has accumulated in the United States and in other countries of the world. Based upon these studies the staff has prepared a tentative plan of insurance believed adequate for the needs of American citizens with small means and appropriate to existing conditions in the United States.

The committee stated in its report eleven objectives, which it described as "the fundamental goals of health insurance," but it did not disclose the tentative plan prepared by its staff.

On the day on which the President's message was submitted to Congress, a bill was introduced to make its recommendations effective, "A Bill to alleviate the hazards of old age, unemployment, *illness*, and dependency, to establish a Social Insurance Board in the Department of Labor, to raise revenue, and for other purposes." In the Senate this bill, S. 1130, was introduced by Senator Robert F. Wagner of New York and referred to the Committee on Finance. In the House of Representatives it was introduced by Representative Rogert L. Doughton of North Carolina, H. R. 4120, and again by Representative David J. Lewis of Maryland, H. R. 4142, and both bills were referred to the Committee on Ways and Means. This bill is now commonly referred to as the Wagner-Doughton-Lewis bill.

Other bills have been introduced in the Senate and in the House of Representatives, thirty-three in all, without administration support, proposing the establishment of systems of so-called social insurance. Some propose specifically the establishment of federal systems of health insurance. Others propose systems of unemployment, old age and social insurance but are susceptible of being construed as authorizing the establishment of systems of health insurance also. These bills have been referred to various committees in the Senate and in the House.

The Senate Committee on Finance gave lengthy hearings on the Wagner-Doughton-Lewis bill. The Committee on Ways and Means of the House of Representatives followed a similar course. In the House of Representatives, the Committee on Labor held hearings on the bills referred to it. On March 15, while the Wagner-Doughton-Lewis bill was still pending before the Senate Committee on Finance and the House Committee on Ways and Means, the House Committee on Labor reported to the House of Representatives one of the bills that had been referred to the committee, with the recommendation that it pass, H. R. 2827, a bill for the establishment of unemployment, old age, and social insurance, and for other purposes, introduced by Representative Ernest Lundeen of Minnesota. Promptly after the report of this bill, its proponents sought to induce the House Committee on Rules to bring in a rule to facilitate its speedy consideration. At present writing (March 29) the bill, sometimes known as the Lundeen bill, is still on the House calendar, and the Committee on Rules has brought in no rule in its favor. The bill authorizes and directs the Secretary of Labor to provide for the immediate establishment of a system for unemployment insurance and of "other forms of social insurance for the purpose of providing compensation for all workers and farmers who are unable to work because of sickness, old age, maternity, industrial injury, or any other disability."

The title of the Wagner-Doughton-Lewis bill specifically denominates it as "A Bill to alleviate the hazards of old age, unemployment, *illness*, and dependency, to establish a Social Insurance Board in the Department of Labor, to raise revenue, and for other purposes." Only once, however, does the text of the bill refer specifically to health insurance. The bill proposes to establish in the Department of Labor a Social Insurance Board, which, among its various duties, shall have the duty of—

> Studying and making recommendations as to the most effective methods of providing economic security through social insurance, and as to legislation and matters of administrative policy concerning old-age insurance, unemployment compensation, accident compensation, *health insurance* and related subjects.

Obviously, when the title of the Wagner-Doughton-Lewis bill describes it as "a bill to alleviate the hazards of . . . *illness*, . . . ," and when the bill itself proposes to charge the Social Insurance Board with the specific duty of "studying and making

recommendations . . . as to legislation and matters of administrative policy concerning . . . health insurance and related subjects," it is to be assumed that the bill looks toward the establishment of a federal health insurance system, a system either independent of state systems or correlated with such systems. It has been suggested that the situation be clarified by eliminating the specific reference to "health insurance" as one of the fields of activity assigned to the proposed Social Insurance Board. The elimination of those words, however, would be hardly more than a gesture, for the board would still be charged with the duty of studying and making recommendations to determine "the most effective methods of providing economic security through social insurance," a duty certainly broad enough to cover health insurance.

The Wagner-Doughton-Lewis bill proposes to extend the federal subsidy system of the Sheppard-Towner maternity and infancy act to a field much larger than has ever heretofore been contemplated. It ignores the fact that federal subsidies, by inducing states to appropriate money for federal-state projects that but for such subsidies would not have been appropriated, have already contributed toward bringing many states to the brink of bankruptcy, if such subsidies have not already led them into the abyss. It is true that the bill authorizes the almoners of the federal government, for the relief of such distressed states, to pay the state's contribution necessary to enable it to obtain federal subsidies for projects that are to be undertaken in the name of social security, but the subsidy system thus tends further to promote improvidence in some states and, by reason of the increased contributions that citizens of better organized and more thrifty states will have to pay, tends only to bring even those states into bankruptcy. As is always the case, moreover, the subsidy system is coupled with federal supervision and control over the states in the exercise of rights that under the constitution they are entitled to exercise independently.

In providing for such federal supervision and control of the activities of the several states, the Wagner-Doughton-Lewis bill proposes to perpetuate the mistake made in the Sheppard-Towner maternity and infancy act and to entrust to the Children's Bureau in the Department of Labor medical and public health functions that should rightly be exercised, if they are to be exercised at all by the federal government, by the United States Public Health Service. Without reflecting in any way on the services rendered by the Children's Bureau in its own statutory field, the proposal to create within that bureau a medical division—and this will be necessary if the bureau is to exercise medical functions—has nothing to commend it.

Note: On April 4, Representative Doughton, North Carolina, introduced a redraft of the Wagner-Doughton-Lewis bill. The redraft was reported favorably by the House Committee on Ways and Means, April 5, and passed the House April 19. The redraft omits from its title all reference to illness. The name of the proposed "Social Insurance Board" is changed to "Social Security Board," and no duty is devolved on the board to study and make recommendations with respect to health insurance. Corporations organized and operated exclusively for religious, scientific, literary or educational purposes, no part of the net earnings of which inures to the benefit of any private shareholder or individual are not liable to the assessments provided in the redraft for old age or unemployment benefits, nor, apparently, are employees of such corporations to be entitled to such benefits. The redraft provides, as did the original bill, federal subsidies, contingent on state plans being acceptable to federal agencies, to promote maternal and infant welfare, to care for crippled or dependent children, to provide for child welfare services, and for the development of state and local health work.

STATE HEALTH INSURANCE

The President's Committee on Economic Security, in its report to the President, transmitted by him to Congress, said:

> The rôle of the Federal Government is conceived to be principally (a) to establish minimum standards for health insurance practice; and (b) to provide subsidies, grants, or other financial aids or incentives to States which undertake the development of health insurance systems which meet the Federal standards.

In anticipation of the enactment of federal health insurance legislation along the lines laid down by the committee, the draft of a model bill, intended to promote the establishment of state health insurance systems, was prepared under the auspices of the American Association for Social Security, Inc. This bill is commonly referred to as the Epstein bill, taking its name from one Abraham Epstein, the executive secretary of the association under the auspices of which the bill was developed. Analyses of this bill have been so widely distributed that it seems unnecessary to repeat them here. It is sufficient to say that the bill proposes the establishment in each state of a system of health insurance covering practically every form of medical, nursing and hospital service, to be administered by an all powerful state board, made up predominantly of laymen. Probably the most significant feature of this bill and of the propaganda in its favor is the absence of actuarial estimates of its probable cost. The fact that tax rates and premiums are fixed in the bill indicates that estimates of costs have been made, but for reasons that the proponents of the measure deem sufficient the public, which must in the end pay the cost of any such measure, is kept in the dark. The Epstein bill has been introduced in the legislatures of Massachusetts, Nebraska and New York. A somewhat different health insurance bill has been introduced in the legislature of Pennsylvania. In California, seven bills purporting to be health insurance bills have been introduced by title only, apparently leaving the committees to which these titles have been referred the task of drafting bills under them. In no state has a health insurance bill been enacted.

FEDERAL EMERGENCY RELIEF ADMINISTRATION

The Federal Emergency Relief Administration continues to provide medical relief, following in a general way the provisions of Rules and Regulations No. 7. These rules and regulations are clearly mandatory in their terms and only by having them mandatory can federal funds for medical relief be properly apportioned. A considerable leeway seems to have been conceded, however, to state emergency relief administrators in the interpretation of these rules and regulations, with resultant variations in standards for medical relief and in payment for medical services in the several states. The situation has been improved, however, by the assignment of Dr. Clifford E. Waller, Assistant Surgeon General, United States Public Health Service, to duty as medical director of the Federal Emergency Relief Administration. It is hoped and expected that under his direction an efficient, economical system of medical relief will be worked out in every state, satisfactory alike to the administration, to the public, which must pay the bills, and to the medical profession.

Unfortunately, the problem of medical relief is likely to be complicated by the practically assured adoption of H. J. Res. 117, a joint resolution making appropriations for relief purposes. This is the resolution that proposes to place at the President's disposal, for relief purposes, approximately $5,000,000,000. So far as direct medical relief is concerned there is no reason why the adoption of this resolution should affect any change from present practices. The resolution, however, contemplates an extensive program of public works, and to the extent that such construction is undertaken directly by the federal government, through its own employees, there will be a large increase in the number of persons entitled to medical services under the provisions of the United States Employees' Compensation Act of 1916, as amended (United States Code, Title 5, Sec. 785), and as modified by the provisions of An Act Making an additional appropriation to carry out the purposes of the Federal Emergency Relief Act of 1933, for continuation of the Civil Works program, and for other purposes, approved Feb. 15, 1934 (48 Stats. 351). To these federal employees, as will be recalled, medical and hospital service will have to be given by United States medical officers and in United States hospitals, wherever they are available, and, where no such officer or hospital is available, by physicians and hospitals designated or approved by the United States Employees' Compensation Commission. The provision of the statute that limits the choice of an injured employee of the United States government to United States medical officers and hospitals or to physicians and hospitals designated by the commission is inconsistent with the principle

uniformly contended for by the American Medical Association. In view, however, of the large claims for compensation, present and future, that will grow out of injuries to government employees sustained in the discharge of their duty, and in view of the difficulty that inexperienced and inadequately instructed physicians must have in filling out the elaborate reports called for in connection with government services, regarded apparently as necessary to facilitate the fair adjustment of claims, there are grave difficulties in pursuing any other course.

It is assumed, of course, that such medical and hospital services as are rendered to government employees under the projected public works program will be restricted to the relief and cure of injuries sustained by employees who incur illness or injury in the line of duty and that medical and hospital services to such employees for illness or injury incurred otherwise, and services to their dependents, will be paid for by the Federal Emergency Relief Administration where the government salary is inadequate to enable the employee to provide the necessaries of life for himself and his dependents, or by the employee himself whose salary is adequate, with incidental free choice of physicians and hospital.

Note: H. J. Res. 117 became a law April 8. So far as the problem of medical relief is concerned, the form in which the resolution was enacted necessitates no revision of the foregoing remarks.

FEDERAL FOOD, DRUG AND COSMETIC LEGISLATION

Three bills of major importance are pending in the Seventy-Fourth Congress for the better regulation of foods, drugs and cosmetics; namely, S. 5, introduced by Senator Copeland of New York, S. 580, introduced by Senator McCarran of Nevada, and H. R. 3972, introduced by Representative Mead of New York and then reintroduced by him in a modified form as H. R. 6906.

The Senate Committee on Commerce gave an extended hearing on the bill introduced by Senator Copeland. The American Medical Association was represented at the hearing and subsequently filed a brief, on both occasions suggesting changes designed to strengthen the bill. The committee reported the bill, March 23, with minor modifications and with the recommendation that it pass. The bill as reported is in effect a revision and extension of the Federal Food and Drugs Act of 1906. It proposes to extend federal control to remedial agents so as to make it cover in interstate and foreign commerce devices and appliances of all kinds intended for therapeutic purposes and to cover cosmetics. Broad provisions are made for regulating the advertising of foods, drugs and cosmetics. Authority is granted to the Secretary of Agriculture to license food producing establishments, to promulgate regulations, and to fix limits of tolerance, and, in certain cases, standard tests. Advisory boards are to be set up to aid the secretary in the formulating of regulations and possibly in certain other activities.

It is to be hoped that if this bill is to be enacted it will be materially strengthened and improved in form. To class all manner of therapeutic devices as "drugs" and to prescribe for them the same standards of adulteration and misbranding as are prescribed for the "drugs" of ordinary parlance is illogical and hardly calculated to facilitate the enforcement of the act. The language inserted to satisfy the demands of cultists fearing lest the act might interfere with some of their practices is confusing. The definition of "medical opinion" is impossible. The requirement that physicians' prescriptions in the District of Columbia, and elsewhere if they enter into interstate commerce, bear statements on the labels showing the active ingredients contained in them is unreasonable and uncalled for. The required declarations on the labels, to show the ingredients in certain types of foods and drugs, will convey but little useful information to purchasers, because the bill as reported does not require the quantity of each active ingredient to be stated or require even that the names of the ingredients be stated in the order of their relative quantities in the mixture. Action looking toward strengthening this bill has already been taken.

Note: On April 1, the Copeland bill was made the unfinished business of the Senate. For the ensuing week the bill was discussed on the floor of the Senate and numerous amendments were adopted. On April 8, however, the Senate displaced the Copeland bill as the unfinished business by voting to take up another bill for consideration. The Copeland bill was thus returned to the Senate calendar and thereby lost its privileged status.

FEDERAL AND STATE NARCOTIC LEGISLATION

Two bills are pending in Congress to regulate the distribution of cannabis in interstate and foreign commerce, S. 1615, introduced by Senator Hatch of New Mexico, and H. R. 6145, introduced by Representative Dempsey of the same state. Other than this, no federal narcotic legislation is pending. In the states, rapid progress is being made toward the enactment of the Uniform Narcotic Drug Act, formulated by the National Conference of Commissioners on Uniform State Laws and approved by the American Bar Association and the American Medical Association. Narcotic laws literally or substantially in this form have been enacted as follows: In 1933 by Florida, New Jersey, New York and Nevada. In 1934 by Louisiana, Kentucky, Rhode Island, South Carolina and Virginia. In 1935 up to the present date (March 29) by Arizona, Colorado, Georgia, Indiana, Nebraska, New Mexico, South Dakota and Utah. Legislation similar in many respects, but not identical, was enacted in 1935 by Oregon and West Virginia. Bills identical with the Uniform Narcotic Drug Act are now pending in Connecticut, Delaware, Illinois, Maine, Massachusetts, Minnesota, Missouri, Ohio and Wisconsin.

Note: Since the foregoing section of the report was written, a uniform narcotic drug act has been enacted in Delaware.

State medical examining and licensing agencies have been criticized in some cases because they do not promptly suspend or revoke the licenses of physicians reported to them by the United States Bureau of Narcotics as being narcotic addicts, in the judgment of the officers of that bureau, and the licenses of physicians whom the bureau alleges have been convicted of violating federal or state narcotic acts. When the evidence submitted by the officers of the bureau warrants such action, the licenses of such physicians should be suspended or revoked according as the circumstances of the case indicate, if, in the judgment of the state agency, suspension or revocation is the procedure best calculated to serve the interests of the public and of the medical profession. Where authority for such suspension or revocation does not exist, it is desirable that an effort be made to procure legislation conferring that authority, in order that the medical profession may be freed of the reproach of numbering among its members narcotic addicts and physicians who abuse the authority granted them to administer, dispense and prescribe narcotic drugs.

LICENSING OF FOREIGN PRACTITIONERS

Complaints from various sources have been received during the year of the influx of foreign physicians into the United States. Inquiry at the Bureau of Immigration showed that alien physicians had been admitted as follows: In 1929, 398; in 1930, 390; in 1931, 329; in 1932, 259; in 1933, 187, and in 1934, 353, a total of 1,916. While the record showed no substantial diminution in the immigrant physicians entering the country, the total number of immigrants diminished from 279,678 in 1929 to 29,470 in 1934. The reason for the continued influx of foreign physicians is obvious when it is noted that the number coming from Germany increased from 22 in 1929, to 160 in 1934. There was no corresponding increase in immigrant physicians from any other country. The number coming in from Canada in the years named fell from 228 to 108. Of the 1,916 physicians who entered the country during the six years named, 755 announced their destination as New York.

These physicians have not been able to enter the United States, as many physicians seem to have supposed, because of any exemption of physicians from the requirements of the act that limits the number of immigrants who may come in each year from each of the several foreign countries, for physicians are not so exempted. They have been enabled to come in, apparently, because of the general diminution in the number of immigrants arriving from foreign countries, which has left the quotas of those countries unfilled and open to physicians or any other persons desiring to avail themselves of the privilege of coming to the United States. Whether such physicians may or may not practice medicine in the United States on their

arrival depends primarily on their ability to meet the requirements of the laws of the several states with respect to the practice of medicine. If they can do so, there seems at present no practicable way of limiting their immigration.

FEDERAL INCOME TAXES

The Revenue Act of 1934 made no change with respect to income taxes that are of special interest to physicians. During the year, however, a controversy arose between physicians practicing in Oregon and in the state of Washington and the federal officers charged with the collection of income taxes in those states and with the auditing of income tax returns, concerning the deductibility, as a professional expense, of the cost of maintaining automobiles for professional service. Local officers of the Bureau of Internal Revenue, in auditing the returns of physicians for 1932, called on physicians for written records to show the mileage traveled by them in their automobiles in connection with their professional practices, to prove just what part of the expense of maintaining an automobile in each case was a personal expense and not deductible, and what part was a professional expense and therefore deductible. During the year covered by the audit there had been no law or regulation in force requiring the keeping of such detailed mileage records, and many physicians were unable to comply with the unusual and unexpected demand. The matter was submitted through the Bureau of Legal Medicine and Legislation to the Commissioner of Internal Revenue, but without obtaining relief. Relief can be obtained, it appears, only through appeals by taxpayers to the Commissioner of Internal Revenue, in Washington, to the Board of Tax Appeals, and to the courts.

VETERANS' LEGISLATION

Several bills are pending proposing to reenact all laws granting benefits to veterans that were repealed by the act of March 20, 1933. Another bill would authorize the admission to any Veterans' Administration hospital of any veteran, not dishonorably discharged, on the payment of a per diem fee in an amount equal to the average cost of hospitalization per patient day at the hospital for the previous month. Other bills propose to establish additional hospitals, to provide medical and hospital services to persons not entitled thereto under the existing law and regulations relating to veterans, and to provide an increase in pensions for veterans. There is pending no legislation proposing to provide benefits for contract surgeons of the Spanish-American War comparable to the benefits provided for other persons of grades similar to that of the contract surgeon.

Note: From March 29 to date (April 23) approximately 20 bills have been introduced proposing to erect either new veterans' general hospitals or additions to existing veterans' general hospitals, in the various states. The House Committee on World War Veterans' Legislation has arranged for an early hearing on the bills. Another bill has been introduced proposing generally to revise all veterans' laws. This bill provides, among other things, that the term "veteran" shall include any individual who served overseas as a contract surgeon in the army.

VIVISECTION LEGISLATION

Bills were introduced in New York and in Wisconsin proposing to prohibit experiments on living dogs for any purpose other than the healing or curing of the dog. The New York bill was defeated. The Wisconsin bill, and a bill in Congress prohibiting experiments on dogs in the District of Columbia, are pending at the time this report is made (March 29).

THE OPTICAL RETAIL TRADE CODE

Demands were made in the early part of the current year by the Optical Retail Trade Code Authority, on ophthalmologists practicing in various parts of the country, for the payment of assessments for the support of the code authority and for reports concerning the extent of business done. Inquiry of the National Industrial Recovery Administration at Washington disclosed the fact that those demands had been sent out to ophthalmologists who were supposed to be engaged in the commercial purchase and sale of eyeglasses and spectacles. Ophthalmologists were advised through letters sent to the secretaries of all state medical associations and through the pages of THE JOURNAL to disregard demands for the payment of assessments and for the making of reports unless they were actually engaged in the purchase and sale of ophthalmic lenses and making a profit out of that commercial business as a matter distinct from their professional work.

Bureau of Health and Public Instruction

Much of the work of the Bureau cannot be presented in statistical form. Correspondence has increased from 6,593 pieces in 1932 to 9,148 in 1934; radio talks have increased from 171 in 1932 to 208 in 1934 and are now national in coverage instead of local; radio talks distributed for use of county societies have increased from 4,312 in 1932 to 7,495 in 1934.

As in previous years, the work of the Bureau has been concerned with "Questions and Answers," editorial duties in connection with HYGEIA, radio broadcasting over two national networks and over local stations, the maintenance of a radio library for state and county medical societies, cooperation with state and county medical societies in health education, preparation and distribution of material relating to protection of medical research, representing the American Medical Association on advisory boards and committees of national lay organizations, writing of articles for publication, and the giving of talks to assembled audiences.

RADIO PROGRAM

The American Medical Association began in November 1933 a broadcasting program over a Blue network of the National Broadcasting Company, which was continued through June 1934 and resumed Oct. 1, 1934. This program made talks available roughly to forty stations, of which we are informed, about 75 per cent took the program on any given date, though only about twenty stations took all the programs. Correspondence, however, shows that the more important stations, such as WJZ in New York and WENR in Chicago, did take the program regularly and therefore coverage was very good. In February 1934 arrangements were made with the Columbia Broadcasting System for a network program covering the southern and western part of the United States and giving virtually a complete coverage through approximately thirty stations from Chicago west, north and south to the Pacific coast. The total number of network talks thus broadcast was thirty-four on the National Broadcasting Company chain and forty-seven on the Columbia Broadcasting System. The facilities of both of the two great broadcasting systems have been made available without cost, and the Board of Trustees gratefully acknowledges their generous services.

A radio program consisting of twelve talks was delivered during the meeting of the American Medical Association at Cleveland. Through the courtesy of the National Broadcasting Company and Station WTAM, two network broadcasts and two local broadcasts were arranged. One of these network broadcasts took the place of the regular NBC program from Chicago. Through the courtesy of the Columbia Broadcasting System and Station WHK, an exactly similar program was arranged. In addition, four local talks were given over Station WGAR.

The director of the Bureau has participated in broadcasting programs under the auspices of state associations and county societies in various places.

The radio library was increased during 1934 from 440 talks to 652, there being added, in 1934, 107 fifteen minute talks, eighty-three ten minute talks and twenty-two five minute talks. The total number of radio talks distributed has been stated already. The radio talks distributed to local and state societies included ninety-four county societies and sixteen state societies.

SERVICE TO STATE AND COUNTY SOCIETIES

In the discharge of its function as a clearing house of information on public health and health education for state and county medical societies, the Bureau conducted a survey in 1934 to establish an up-to-date record of activities in health education throughout the United States, such as radio programs, speakers' bureaus, participation in community public health activities, use of press releases, participation in community health councils and other organized activities in relation to public health and health education. The details revealed by this survey have been embodied in a paper, which was read

before eight county medical societies and has been distributed in mimeographed form. There is no space here to do more than say that this survey discloses great activity in public health and health education on the part of state and county medical societies and an encouraging acceptance on the part of their communities of the interest expressed in public health and health education by the organized medical profession.

The clipping loan service of HYGEIA clippings has been continued, seventy-four such loans being made in 1934. Since old issues of HYGEIA grow scarcer as time goes by, this clipping loan service will assume increasing importance. The correspondence exchanging suggestions and information between local society officers and the Bureau grows heavier month by month.

PROTECTION OF RESEARCH

The question of medical research involving animal experimentation is constantly being agitated by the antivivisectionists, particularly in centers where medical education is important. The animal experimentation fight seemed to be centered in Chicago in 1934, but there was also evidence of activity in New York, in Boston and in California. The Bureau has added new publications on this topic to its list of pamphlets. Arrangements were made also for educational talks on animal experimentation and the debt of science to animals over the regular network facilities described in the section of this report dealing with radio. Information has been furnished to local societies, and the Bureau made its annual presentation to graduating students in class A medical schools of one copy each of the pamphlets The Dog's Gift to the Relief of Suffering and The Ethics of Animal Experimentation from the Viewpoint of a Philosopher.

COOPERATION WITH LAY ORGANIZATIONS

By order of the Board of Trustees, the director is now acting as a member of the medical advisory board for the National Congress of Parents and Teachers (Summer Round-Up of the Children), the General Federation of Women's Clubs (Health and Welfare Department), the National Committee for Boys' and Girls' Club Work (4-H Club Movement) and the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.

The printed matter to be officially distributed by the National Congress of Parents and Teachers in 1935 definitely states that preschool examinations whenever possible should be conducted by the family physician in his own office. Copies of this material have been distributed to all secretaries of state medical societies and to the secretaries of the fifty largest county medical societies, and in response the Bureau has received many expressions of approval and the encouragement to proceed with definite development of the policy thus initiated. A leaflet authorized by the National Congress of Parents and Teachers at the advisory board meeting in 1934 will inform physicians, dentists and nurses as to the objectives of the "Summer Round-Up" and will suggest methods for procuring examinations, especially emphasizing the importance of referring all patients wherever possible to the family physician and dentist for examination. The committee to prepare this leaflet includes the director of the Bureau, a representative of the American Dental Association and a representative of the National Organization for Public Health Nursing.

There has been no further development in the cooperative relationships with the General Federation of Women's Clubs. The cancer education campaign previously outlined (1933 annual report of the Bureau of Health and Public Instruction) is going forward and seems to be proceeding satisfactorily and with due regard to the avoidance of hysteria. The federation continues to preserve an attitude of neutrality as regards controversial questions in the field of medical economics, contenting itself with informing local clubs of sources of information, including the American Medical Association.

The Joint Committee on Health Problems in Education met in February, and by common consent the meeting was one of the best in recent years. The meeting was attended on behalf of the American Medical Association by four of its six representatives; namely, Drs. Isaac A. Abt, Thurman B. Rice, R. G. Leland and the director of the Bureau. Absent members were Drs. A. J. Chesley of Minneapolis and Edward Jackson of Denver, both unavoidably detained. Their advice on matters pending before the committee was procured by correspondence. The committee discussed progress on a number of reports that were not ready for publication at the time of the February meeting. At least two of these reports, dealing respectively with conservation of sight of the school child and a study of school health service policies, progressed practically to the point of publication by the end of 1934 and will undoubtedly appear during the present year.

PERSONAL APPEARANCES

The director of the Bureau made sixty-eight addresses during the year to sixty-six different groups, audiences totaling 1,008 physicians in medical society groups, 15,662 persons in lay groups, and 310 in groups including both doctors and lay persons; total audiences, 16,980 persons.

EXHIBITS

In cooperation with the Bureau of Exhibit, the Bureau of Health and Public Instruction assisted in the planning of changes in the American Medical Association exhibit at A Century of Progress. An exhibit entitled "The Medical Profession and the Public Health" was shown at the American Medical Association annual session at Cleveland. The Bureau of Health and Public Instruction continues to cooperate closely with the Bureau of Exhibit in making exhibit material available, with the consent of local medical societies, to public health or lay groups requesting such material.

PAMPHLETS AND REPRINTS

In view of the extensive revision of pamphlets undertaken by the Bureau in 1933, the necessity for such revision was less in 1934. Nevertheless the Bureau added eighteen titles to the lay catalogue, revised four titles and dropped nine titles. Reprints totaling 79,000 were sold.

QUESTIONS AND ANSWERS

The question and answer correspondence in 1934 showed an increase of about 15 per cent over 1933.

The number of Questions and Answers published in HYGEIA was seventy-eight, representing just under 1 per cent of the total questions. As the correspondence increases, naturally the proportion published, which formerly ran as high as 6 per cent, will steadily decrease.

For the second year of A Century of Progress the Bureau again prepared a selected set of 145 questions and answers, which were displayed as in the previous year. The Bureau of Exhibit has duplicated these sets and they have been effectively used in connection with local medical society exhibits and personal appearances for public addresses. This particular exhibit technic has also been used by other departments of the Association.

Bureau of Investigation

As has been emphasized in each annual report, the best index to the activities of the Bureau of Investigation is the amount of correspondence it handles during the year. In this connection it is interesting to go back over two decades and compare the number of inquiries that the Bureau received and answered in the decade from 1915 to 1924 inclusive, as compared with the last decade, from 1925 to 1934 inclusive. In the first of these ten-year periods the total number of inquiries received and answered was 37,388; in the second ten-year period the number of inquiries received and answered was 100,919, or an increase in the second period over the first of nearly 270 per cent.

These figures become more remarkable when it is borne in mind that during the second period—that is, between 1925 and 1934—a large amount of correspondence that had previously been handled by the Bureau of Investigation was turned over to other departments, including the Council on Medical Education and Hospitals, the Bureau of Medical Economics, the

Bureau of Exhibits and the Committee on Foods. In spite of this the correspondence of the Bureau of Investigation has been maintained at around 11,000 letters annually. It is this work of answering inquiries from physicians and laymen that comprises the most important function of the Bureau, and it cannot too often be emphasized that such correspondence does not have the casualness of ordinary business. Dealing as it does with products, concerns and individuals of questionable standing, it carries with it a serious responsibility. In the twenty-eight years during which what is now called the Bureau of Investigation has been in existence, meticulous care has been exercised to see that no statements are sent out by the Bureau that are not justified by the facts and supported by documentary evidence.

The interest that was evinced in 1933 both by physicians and by intelligent laymen in the proposed new national legislation to extend the powers of the federal government over the sale, and particularly over the advertising, of nostrums extended through 1934. The continued low advertising standards maintained by many broadcasting stations with the resulting amount of fraudulent medical advertising that has gone out over the air has been responsible for the Bureau's receiving and answering thousands of inquiries about radio-advertised nostrums and quacks.

The Better Business Bureaus of the country, the Federal Trade Commission, the Food and Drugs Administration, the Federal Communications Commission all continue to cooperate actively with the Bureau of Investigation.

During the past year the Bureau of Investigation has sought and received help from the Division of Investigation of the United States Department of Justice in getting information regarding the criminal records of certain impostors who have been swindling physicians.

The Bureau has continued to be of every possible help to governmental agencies when called on.

The number of inquiries received from teachers and students in educational institutions gets larger every year. It is no unusual thing for the Bureau within the period of a few days to receive scores of requests from members of a class that is making a study of "patent medicines" or quackery, whether from a health, economic or sociological point of view.

The director of the Bureau addressed thirty-seven audiences during the year in various cities in five states and the District of Columbia.

The demand for the pamphlets prepared and issued by the Bureau of Investigation continues. There has been an unusual demand for the Bureau's pamphlet "Cosmetics and Allied Preparations."

Material for a third volume of "Nostrums and Quackery" is being compiled. The plan is to make volume III much more condensed than either of the previous two volumes. While this will necessitate rewriting almost all the accumulated material, it is believed that the greater usefulness of the proposed book will repay the amount of extra effort involved.

Bureau of Exhibits

THE ANNUAL SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Cleveland session was the largest in the history of the Association. For the first time all fifteen sections of the Scientific Assembly participated through special section exhibit committees. Sixty-three papers read before the sections were illustrated with exhibits on the same subjects, a larger number than ever before.

The commodious hall at Cleveland facilitated the housing of 167 exhibits, compared to 120 the year before. The special exhibits, put on by special committees appointed for the purpose, included encephalitis, demonstrations in pathology, and nutrition. Ten of the section exhibit committees took part in special features, adding much to the success of the Scientific Exhibit as a whole. Among these features were two special exhibits on "Home Delivery Technic" and "First Aid in Eye Injuries"; exhibit symposiums included amebiasis, thyroid diseases, treatment of burns, and cutaneous allergy; motion picture programs conducted on regular schedules were shown simultaneously in several parts of the hall.

THE CENTRAL SCIENTIFIC EXHIBIT

The Central Scientific Exhibit was dismantled in the headquarters building in December and the equipment and much of the material was lent to the Museum of Science and Industry, where a department for medical exhibits has been established. The exhibit material not lent to the museum was returned to the original donors.

ASSOCIATION EXHIBITS

Association exhibits divide themselves into two groups: those of a scientific nature dealing with the work of the Association or with medical science, and those of a more popular nature, for the public.

Exhibits for meetings of state and county medical societies and other scientific groups have been sent out twenty-six times during the year. The closest contact has been maintained with the various councils and bureaus of the Association in order that the work of the Association may be properly presented. In addition to exhibits portraying the work of the Association, there have been added from time to time, mainly from the annual Scientific Exhibit, exhibits dealing with various phases of scientific medicine, constituting in fact an effort at graduate medical education. The advice of the Council on Medical Education and Hospitals has been most helpful in regard to these. There has been prepared for distribution a list of twenty-one exhibits suitable for state and county medical meetings. The exhibits for public expositions, fairs and the like supplement the work of the Bureau of Health and Public Instruction, with which bureau there has been the closest cooperation. During the year exhibit material was sent to fifty different expositions and fairs, in most instances in the care of a state or county medical society in that area.

EXHIBIT AT A CENTURY OF PROGRESS EXPOSITION

During the five months of A Century of Progress Exposition in 1934, the exhibit of the American Medical Association was even more successful than in 1933. While the total attendance at the exposition was somewhat less in 1934, the crowds were more discriminating, resulting in a relatively larger proportion of visitors to the medical exhibits in 1934 than in 1933. Some changes and new material in the exhibits of the Association were made, but otherwise the exhibit was conducted on the same general plan as in 1933. In the visitors' book, kept only in 1934, 1,080 physicians registered from all parts of the United States, Canada, Europe and Asia. Several millions of persons visited the exhibit during the two seasons.

The exhibit material shown at A Century of Progress Exposition has been lent to the Museum of Science and Industry for inclusion in the medical exhibit at that institution.

MOTION PICTURES

During the year there were many hundred requests for motion pictures. The Association has no films suitable for lay audiences. The Bureau of Health and Public Instruction has prepared a list of film sources, however, which has been given wide distribution.

Films for medical audiences have been sent out on numerous occasions. The Council on Physical Therapy has collected several 16 mm. films, which have been very popular. The Association has, in addition to these, two 35 mm. films for which there has been little demand recently because of lack of facilities in most communities to run them.

Committee on Foods

The membership of the Committee on Foods during 1934 was changed by the resignation of James S. McLester, M.D., professor of medicine, University of Alabama, consequent to his election as President-Elect of the American Medical Association; termination of the term of membership of Julius H. Hess, M.D., professor of pediatrics, University of Illinois School of Medicine, and the appointments of Joseph Brennemann, M.D., chief of staff of the Children's Memorial Hospital, Chicago, and Lydia J. Roberts, Ph.D., chairman and professor, Department of Home Economics, the University of Chicago.

The following is a statistical summary of products submitted, accepted and rejected, and acceptances withdrawn:

Products submitted—Total up to Dec. 31, 1934		2,985
	1932	632
	1933	583
	1934	1,125
Products accepted—Total up to Dec. 31, 1934		2,317
	1932	493
	1933	490
	1934	1,111
Products rejected—Total up to Dec. 31, 1934		91
	1932	16
	1933	41
	1934	30
Withdrawals of acceptance—Total up to Dec. 31, 1934		64
	1934	33

The volume of work of the Committee increased greatly over that of previous years. The number of foods submitted increased from 600 per annum for the two preceding years to more than 1,100. The number of inquiries regarding the Committee, of requests for information on foods and nutritional subjects, and food advertising and manufacture, from physicians, government officials, hospitals, educational institutions and the public, and the regular routine work have all been much greater than previously. The newly instituted control over accepted products that was put into effect added greatly to the duties of the office of the Committee.

RULES AND REGULATIONS

The Rules and Regulations were revised by the addition of a rule governing package label and advertising for "special purpose foods" with usefulness restricted to specific purposes. This new rule specifies the information which, in the interest of the public, should be given on the label and in the advertising for this type of products. Two new editions of the Rules were published.

GENERAL COMMITTEE DECISIONS

Eleven new General Committee Decisions were adopted and published in THE JOURNAL:

Acidosis Claims in Lay Advertising
Advertising Dealing with Treatment of Disease or the Nutrition of the Sick, or Recommending any Special Type of Diet
Blood Building Claims in Advertising
Educational Food Advertising
Energy Claims for Foods
Iron Claims for Foods
Pasteurization of Milk
Resistance Claims in Food Advertising
Special Purpose Foods for Diets Restricted in Dextrose Formers
Sweets in the Diet, Especially of Children
Vitamin E Claims for Public Advertising

These decisions explicitly define the Committee's judgment on the particular topics and serve as guides for passing on advertising for accepted products. The General Decisions of the Committee now total fifty-one.

There is a constant demand for copies of the booklet of Committee decisions from advertising agencies, members of the food industry and others. Apparently they are being found to be useful and practical. A number of the decisions are especially helpful in preparing replies to inquiries from physicians and members of other professions for authoritative opinions on important current food or nutritional issues. In certain instances, manufacturers have indicated that the decisions are helpful in planning new food or advertising projects.

RECOMMENDATIONS FOR AMENDMENT OF FEDERAL FOOD AND DRUGS ACT

The experience of the Committee gained in the last five years in passing on foods and food advertising has particularly emphasized the need for radical amendment of the present Food and Drugs Act, that it may more effectively protect the health, good nutrition and economic interests of the public. Accordingly, twenty distinct recommendations were proposed for amendment of food sections of the act. These recommendations were endorsed by the Board of Trustees and with its authorization were published in THE JOURNAL.

SERVICE TO PHYSICIANS

The large number of inquiries regularly received by the office of the Committee from physicians indicates a broader recognition of the valuable service the Committee is capable of giving the medical profession on food questions. The office of the Committee is becoming a repository of such information and furnishes unbiased and authentic reports on request.

APPOINTMENT OF SUBCOMMITTEE TO STUDY RELATIVE HUMAN ANTIRACHITIC VALUES OF VARIOUS TYPES OF VITAMIN D MILKS

Many vitamin D milks fortified by irradiation or by the addition of vitamin D concentrates obtained from cod liver oil have been accepted. These two types of vitamin D milks are considered antirachitic agents when taken in sufficient quantity. Several vitamin D evaporated milks fortified by similar methods have been accepted also, but their status as antirachitic agents has not yet been officially determined. Applications for acceptance of other forms of vitamin D milks, namely, milk obtained from herds fed irradiated yeast, and milk fortified with activated ergosterol, have been received and are pending.

The question is now before the Committee of the relative human antirachitic values of these various vitamin D milks. The chairman, last May, appointed a subcommittee, comprising the three pediatricians of the Committee, to study this problem. The subcommittee has collected all available reports of clinical studies of the various types of vitamin D milks. Owing to the many complex problems involved, the subcommittee was unable to submit its report for consideration by the entire Committee, but this report will probably be available early in 1935. It is the intention of the Committee to publish a report of appraisal of the human antirachitic values of all types of vitamin D milks merchandised. This contribution should be of particular value to physicians, especially pediatricians, the public and the industry.

CONTROL EXERCISED OVER ACCEPTED PRODUCTS AND ADVERTISING

It is a basic requirement of the Committee that accepted foods and promotional advertising be maintained acceptable. This is indispensable to the preservation of the significance of the Committee seal and of acceptance and the prestige of the Committee. For this reason the Committee at the end of 1933 adopted its important rule requiring the submission of all advertising of every character as it issues, and the notification of any changes in labels or composition of accepted foods. Application of this rule began last April. This requirement is something entirely novel to the food industry, as never before has any control of such character and thoroughness been exercised over commercial products and advertising. Although all sponsors of accepted products have signed a written agreement to comply with this rule and are apparently in thorough sympathy with it, it must be recognized that the industry has to adjust itself to this entirely new form of voluntary control. Most sponsors of accepted products, judged by the large volume of submitted advertising, are complying quite satisfactorily with this rule.

A number of companies issuing large volumes of advertising have submitted all copy and have voluntarily stated that the benefits derived from acceptance and the control exercised by the Committee over advertising more than compensate for the nominal expense and inconvenience of submitting the advertising.

CONCLUSION

The members of the Committee have given another year of conscientious service to the economic and nutritional welfare and health of the public. The Committee has at all times displayed a spirit of cordial cooperation with the food industry in its problems of merchandising foods of desired and expected values supported by truthful advertising.

The members of the food industry who have so thoroughly and wholeheartedly cooperated with the Committee by maintaining their accepted products and advertising in conformity with the high standards of the Committee deserve special commendation. Many manufacturers or sponsors of accepted foods, at considerable expense or trouble, have discarded improper advertising and given special effort to the development of truthful advertising, thus showing their confidence in the principles enunciated by the Committee for the good of the public and the industry. This attitude, shown by large and small

manufacturers alike, must gradually but surely lead to a higher order of business in the field of foods and to the establishment of a better recognition of consumer rights, welfare and health.

Conferences with Councils and Editorial Boards

In order that the Board of Trustees might keep in closer touch with the work of the councils and editorial boards of special journals and thereby be enabled to be as helpful as possible in promoting the fine work that is being carried on by these official groups, conferences were held during the year with the Council on Pharmacy and Chemistry and the Council on Physical Therapy and with representatives of some of the editorial boards

Additional personnel has been provided in the offices of the Council on Pharmacy and Chemistry and of the Council on Physical Therapy, and additional funds have been appropriated for the use of these councils to aid them in meeting the constantly growing demands that are being made on them.

Members of Councils and Committees

Dr. Frank H. Krusen of Philadelphia was elected a member of the Council on Physical Therapy for a term of three years.

Dr. Stanhope Bayne-Jones of New Haven, Conn., who rendered most devoted and efficient service as a member of the Council on Pharmacy and Chemistry, resigned after he had been made dean of Yale University School of Medicine. Dr. J. Howard Brown of Baltimore was made a member of the Council to succeed Dr. Bayne-Jones.

Dr. George H. Simmons, for more than thirty years an active member of the Council on Pharmacy and Chemistry, having expressed a desire to be relieved of active duty, was made an honorary life member by official action of the Council, and Dr. Elmer M. Nelson of Washington, D. C., was elected as his successor.

Dr. R. L. Sensenich of South Bend, Ind., was made a member of the Committee on Legislative Activities.

Dr. Lydia Roberts of Chicago was elected a member of the Committee on Foods to succeed Dr. James S. McLester.

Liability Insurance for Members

The Board of Trustees has given its most careful consideration to the resolution, submitted by the delegates from Oklahoma at the Cleveland session, asking that an investigation be made to determine the feasibility of perfecting a plan whereby the American Medical Association could provide liability insurance for members. As the result of a careful study of the various factors involved in this proposal, the members of the Board of Trustees are of the unanimous opinion that it would be inadvisable for the Association to undertake any such enterprise.

Motion Picture of Headquarters

The motion picture portraying some of the important activities in the offices of the Association was shown during the year before various groups in a number of states. The total attendance of physicians at the showing of this picture was in excess of 15,000. The picture has been favorably received and has been highly commended by many individual physicians as a means of acquainting the members of the Association with the character and the scope of the work that is being carried on by councils, bureaus and departments.

Building and Equipment

The building of the Association and all equipment have been maintained in the best possible order, and necessary facilities for maintaining the work of all departments on the highest possible plane of efficiency have been provided.

Much of the Association's work requires highly specialized service and every member of the working personnel has important duties to perform. The Board of Trustees takes pleasure in offering commendation and in acknowledging its grateful appreciation of the faithful and efficient service rendered by the entire body of the Association's employees.

Respectfully submitted.

J. H. J. Upham, Chairman.
Austin A. Hayden, Secretary.

Arthur W. Booth.
Allen H. Bunce.
Thomas S. Cullen.
Roger I. Lee.
Joseph A. Pettit.
Rock Sleyster.
Charles B. Wright.

ADDENDA TO REPORT OF BOARD OF TRUSTEES

Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research.

During the year 1934 the committee made thirty-five new grants. A detailed list of these grants together with a list of publications during 1934 and of unexpired grants made before Jan. 1, 1934, will be found in the appendix of this report.

The following is a list of the investigations conducted with the assistance of grants made by the Therapeutic Research Committee, reports of which were published during 1934:

1. Effect of Intravenously Injected Dextrose on the Rate of Propulsion in the Small Intestine, J. P. Quigley and William H. Hightstone: The Journal of the American Medical Association **102**:1002 (March 31) 1934.

2. A Study of the Propulsive Activity of a Thiry-Vella Loop of Intestine, J. P. Quigley, W. H. Hightstone and A. C. Ivy: *American Journal of Physiology* **106**:151 (April) 1934.

3. Action of Morphine, Papaverine, Atropine, Pilocarpine, Pituitrin, Pitocin and Pitressin on Intestinal Propulsive Activity Determined in the Unanesthetized Dog by the Bolus Method, J. P. Quigley, William H. Hightstone and A. C. Ivy: *Journal of Pharmacology and Experimental Therapeutics* **51**:308 (July) 1934.

4. A Simple Adaptation of Kolthoff's Colorimetric Method for the Determination of Magnesium in Biological Fluids, Arthur D. Hirschfelder and Earl R. Serles: *Journal of Biological Chemistry* **104**:635 (March) 1934.

5. Clinical Manifestations of High and Low Plasma Magnesium Dangers of Epsom Salt Purgation in Nephritis, Arthur D. Hirschfelder: The Journal of the American Medical Association **102**:1138 (April 7) 1934.

6. Effect of Renal Insufficiency upon Plasma Magnesium and Magnesium Excretion After Ingestion of Magnesium Sulphate, Arthur D. Hirschfelder: *Journal of Biological Chemistry* **104**:647 (March) 1934.

7. The Relation of Serum Protein Fractions to Serum Sickness in Rabbits, Lloyd Jones and Moyer S. Fleisher: *Journal of Immunology* **26**:455 (June) 1934.

8. Studies on the Effect of Narcosis on the Rate of Locomotion of Polymorphonuclear Leukocytes in Vitro, Harry Lowenburg Jr.: *American Journal of the Medical Sciences* **188**:472 (Oct.) 1934.

9. The Etiology of Granulopenia (Agranulocytosis), with Particular Reference to the Drugs Containing the Benzene Ring, Roy R. Kracke and Francis P. Parker: *Journal of Laboratory and Clinical Medicine* **19**:799 (May) 1934.

10. The Etiology of Granulopenia (Agranulocytosis), with Particular Reference to Drugs Containing the Benzene Ring, Roy R. Kracke and Francis P. Parker: *American Journal of Clinical Pathology* **4**:453 (Nov.) 1934.

11. The Accumulation of Iron in Tuberculous Areas: IV. The Effect of Ferric Chloride on the Course of Tuberculosis in Reinfected Rabbits, Valy Menkin: *Journal of Experimental Medicine* **60**:463 (Oct. 1) 1934.

12. The Response of the Normal Guinea-Pig to the Administration of Liver Extracts, Bernard M. Jacobson: *Science* **80**:211 (Aug. 31) 1934.

13. The Influence of Various Preparations of Lactic Acid and Sugars on the Growth of Transplanted Tumors: II. Mouse Sarcoma 180, I. A. Parfentjev, V. D. Suntzeff and W. K. Devrient: *American Journal of Cancer* **20**:117 (Jan.) 1934.

14. The Effect of Experimental Dehydration on the Action of Certain Convulsant Drugs, A. H. Maloney: *Archives internationales de pharmacodynamie et de thérapie* **47**:284, 1934.

15. Barbiturates in Local Anesthetic Toxicity, A. H. Maloney: *Journal of Pharmacology and Experimental Therapeutics* **51**:297 (Nov.) 1934.

16. Magnitude of Urinary Iron Excretion in Healthy Men, Ramon F. Hanzal and Franklin C. Bing: *Proceedings of the Society for Experimental Biology and Medicine* **31**:617, 1934.

17. Is the High Basal Metabolic Rate in "Hyperthyroidism" Due to Thyroxine? J. W. Cavett, Carl O. Rice and J. F. McClendon: *Science* **80**:19 (July 6) 1934.

18. The Iodine Content of Potatoes, J. F. McClendon, Earl Barrett and Thomas Canniff: *Biochemical Journal* **28**:1209, 1934.

19. On the Use of Ringer-Locke Solutions Containing Hemoglobin as a Substitute for Normal Blood in Mammals, W. R. Amberson, J. Flexner, F. R. Steggerda, A. G. Mulder, M. J. Tendler, D. S. Pankrats and E. P. Laug: *Journal of Cellular and Comparative Physiology* **5**:359 (Dec.) 1934.

20. Oxygen Consumption with Hemoglobin-Ringer, A. G. Mulder, W. R. Amberson, F. R. Steggerda and J. Flexner: *Journal of Cellular and Comparative Physiology* **5**:383 (Dec.) 1934.

21. The Influence of *pa* upon the Elimination of Hemoglobin by the Perfused Frog's Kidney, M. D. Webster, F. L. Engel, E. P. Laug and W. R. Amberson: *Journal of Cellular and Comparative Physiology* **5**:399 (Dec.) 1934.

22. The Effect of Insulin and Epinephrine on the Amino Acid Content of the Blood of Adrenalectomized Rabbits, Burt L. Davis Jr. and Walton Van Winkle Jr.: *Journal of Biological Chemistry* **104**:207 (Feb.) 1934.

During 1934 the following grants were made:

Grant 219: Torald Sollmann, professor of pharmacology, and Harold H. Cole, associate clinical professor of dermatology and syphilology, Western Reserve University School of Medicine, $100 to investigate the epidemic factor in mercurial salivation.

Grant 220: Nora E. Schreiber and Katharine I. Henderson, Department of Pharmacology, Western Reserve University School of Medicine, $300, to investigate the clinical excretion of bismuth and mercury.

Grant 221: John G. Reinhold, Department of Public Health, Philadelphia General Hospital, $250, to investigate the action of aminoacetic acid in progressive muscular dystrophy.

Grant 222: Eugene U. Still, Department of Physiology, University of Chicago School of Medicine, $250, to investigate the changes in the metabolism of the pancreas.

Grant 223: Clinton H. Thienes, professor of pharmacology, and Lawrence E. Detrick, Department of Pharmacology, University of Southern California School of Medicine, $200, to investigate withdrawal phenomena in morphine addicted animals.

Grant 224: John H. Peters, professor of medicine, Yale University School of Medicine, $250, to investigate the effects of dinitrophenol.

Grant 225: J. Murray Luck, professor of chemistry, Stanford University, Calif., $250, to investigate an insulin test for adrenal function.

Grant 226: Elaine P. Ralli, assistant professor of medicine, New York University, University and Bellevue Hospital Medical College, $250, to investigate the effect of the mouth feeding of carotene on blood carotene.

Grant 227: Katharine I. Henderson, Department of Pharmacology, Western Reserve University School of Medicine, $100, to investigate the clinical excretion of mercury and bismuth.

Grant 228: Henry G. Barbour, associate professor of pharmacology and toxicology, Yale University School of Medicine, $250, to investigate metabolism and water exchange in morphine habituation.

Grant 229: J. F. McClendon, professor of physiological chemistry, University of Minnesota Medical School, $200, to investigate the iodine in the blood of normal and goitrous individuals.

Grant 230: Henry B. Richardson, associate professor of medicine, Cornell University Medical College, $250, to investigate female sex hormone therapy.

Grant 231: William R. Amberson, professor of physiology, University of Tennessee College of Medicine, $100, to investigate hemoglobin perfusion fluids.

Grant 232: George R. Cowgill, associate professor of physiological chemistry, Yale University School of Medicine, $250, to investigate the heart in vitamin B deficiency.

Grant 233: Norman A. David, assistant professor of pharmacology, West Virginia University School of Medicine, $100, to investigate the effect of carbarsone and other related "para-positioned amine grouped" organic arsenicals on the optic nerve.

Grant 234: Read M. Ellsworth, Johns Hopkins Hospital, $150, to investigate the physiology of the parathyroid glands.

Grant 235: Owen S. Gibbs, professor of physiology, Georgetown University School of Medicine, $75, to investigate the effects of continuous small doses of substances injected into the arterial supply of an organ, with especial reference to secretory glands.

Grant 236: Charles W. Greene, professor of physiology and pharmacology, University of Missouri School of Medicine, $100, to investigate the pharmacology of the so-called specific coronary dilator drugs.

Grant 237: Louis N. Katz, physiologist and director of cardiovascular research, Nelson Morris Memorial Institute for Medical Research, Michael Reese Hospital, Chicago, $100, to investigate the action of drugs on the coronary circulation.

Grant 238: Roy R. Kracke, professor of pathology, Emory University School of Medicine, $250, to investigate the effect of the oxidation products of amidopyrine and related drugs on the leukocyte counts of rabbits.

Grant 239: John R. Murlin, director and professor of physiology, Department of Vital Economics, University of Rochester School of Medicine, $100, to investigate the absorption of insulin from the alimentary canal.

Grant 240: Kenneth W. Thompson, resident surgeon, Peter Bent Brigham Hospital, Boston, $250, to investigate the effects of the thyroid stimulating hormone pituitary; its relationship to other substances in the possible control of hyperthyroidism.

Grant 241: George E. Waherlin, associate professor of physiology and pharmacology, University of Louisville School of Medicine, $200, to investigate hematopoiesis.

Grant 242: Abraham White, Department of Physiological Chemistry, Yale University School of Medicine, $100, to investigate the metabolism of the essential amino acids cystine, methionine and histidine.

Grant 243: Fred C. Koch, chairman of the Department of Physiological Chemistry and Pharmacology, University of Chicago, $250, to investigate the antirachitic potency of irradiated sterols other than ergosterol.

Grant 244: Bernard M. Jacobson, Massachusetts General Hospital, Boston, $200, to investigate liver extracts.

Grant 245: Carl J. Wiggers, professor of physiology, Western Reserve University School of Medicine, $250, to investigate the usefulness of drugs in coronary thrombosis.

Grant 246: Treat B. Johnson, Sterling professor of chemistry, Yale University, $250, to investigate the pharmacologic action of some pyridine derivatives in relation to their chemical constitution.

Grant 247: Arthur W. Grace, Department of Medicine, Cornell University Medical College, $250, to investigate the use of antimonial compounds in the treatment of lymphogranuloma inguinale.

Grant 248: Fred C. Koch, chairman of the Department of Physiological Chemistry and Pharmacology, University of Chicago, $250, to investigate the testis hormone.

Grant 249: J. Percy Baumberger, associate professor of physiology, Stanford University, $200, to investigate the occurrence and oxidation-reduction potential of pigments in tumor cells.

Grant 250: A. R. McIntyre, professor of pharmacology, University of Nebraska College of Medicine, $100, to investigate the effects of the digitaloid bodies on the metabolism of dextrose by the cardiac musculature.

Grant 251: Bernard Fantus, professor of therapeutics, University of Illinois College of Medicine, $100, to investigate the titration of the antitoxic value of serum of patients who have received tetanus antitoxin.

Grant 252: Frederick D. Weidman, professor of dermatologic research, University of Pennsylvania School of Medicine, $100, to investigate the causes of human blastomycosis.

Grant 253: Katharine I. Henderson, Department of Pharmacology, Western Reserve University School of Medicine, $300, to investigate the excretion of bismuth.

The following grants were issued before Jan. 1, 1934. In some cases the grant has expired and an unexpended balance remains, or the work is not yet completed or a report not yet published:

Grant 102: C. W. Greene, professor of physiology and pharmacology, University of Missouri Department of Physiology, $250, to investigate the distribution of nitrous oxide and oxygen in the blood during anesthesia.

Grant 119: Nicholas Kopeloff, research associate in bacteriology, New York State Psychiatric Institute and Hospital, $100, to investigate bacillus acidophilus milk for the prevention and treatment of summer diarrhea in babies.

Grant 143: Cleveland J. White, M.D., 104 South Michigan Avenue, Chicago, $150, to investigate the local, general and prophylactic aspects of superficial fungus diseases of the skin.

Grant 152: C. W. Greene, professor of physiology and pharmacology, University of Missouri Department of Physiology, $300, to investigate the reaction of the coronary system to drugs.

Grant 164: E. L. Jackson, associate professor of pharmacology, Emory University School of Medicine, $200, to investigate the antagonism between sodium barbital and insulin.

Grant 166: Jean Oliver, professor of pathology, Hoagland Laboratory, Long Island College of Medicine, $200, to investigate experimental nephritis in the frog.

Grant 171: Ernest C. Dickson, professor of Department of Public Health and Preventive Hygiene, Stanford University School of Medicine, $250, to investigate therapeutic procedures against coccidioidal granuloma.

Grant 192: Carl J. Wiggers, professor of physiology, Western Reserve University School of Medicine, $250, to investigate the effect of drugs on the coronary circulation in intact dogs.

Grant 194: Sarah A. Riedman, Columbia University College of Physicians and Surgeons, $200, to investigate the effect of a high fat or ketogenic diet on the susceptibility of animals to convulsions of experimental origin.

Grant 199: Henry G. Barbour, associate professor of pharmacology and toxicology, Sterling Hall of Medicine, Yale University, $250, to investigate the effects of metabolism and water exchange of long continued administration of morphine.

Grant 200: Walter Bauer, Massachusetts General Hospital, the Robert W. Lovett Memorial Foundation of the Harvard Medical School, $250, to investigate the anatomy and physiology of normal joints, with special reference to rheumatoid arthritis.

Grant 201: George R. Cowgill, associate professor of physiologic chemistry, Sterling Hall of Medicine, Yale University, $250, to investigate vitamin B in relation to morphine addiction.

Grant 202: Charles M. Gruber, professor of pharmacology, Jefferson Medical College of Philadelphia, $200, to investigate the effects of drugs on Bell's muscle, trigon and fundus of the urinary bladder and of diluudid on the intestine of unanesthetized dogs.

Grant 204: E. B. Krumbhaar, professor of pathology, McManes Laboratory of Pathology, University of Pennsylvania School of Medicine, $100, to investigate leukocyte attraction.

Grant 207: Valy Menkin, Department of Pathology, Harvard Medical School, $200, to investigate inflammation and tuberculosis in relation to immunity.

Grant 209: V. C. Myers, professor of biochemistry, and F. C. Bing, Department of Biochemistry, Western Reserve University School of Medicine, $250, to investigate iron metabolism.

Grant 210: C. I. Reed, associate professor of physiology, University of Illinois College of Medicine, $200, to investigate the use of viosterol 10,000 X in seasonal hay fever.

Grant 211: Samuel R. M. Reynolds, Department of Physiology and Pharmacology, Long Island College of Medicine, $150, to investigate the identification and standardization of progestin.

Grant 212: William C. Rose, professor of physiologic chemistry, University of Illinois, $375, to investigate the isolation of an unknown dietary essential present in proteins.

Grant 213: Richard W. Whitehead, professor of physiology and pharmacology, University of Colorado School of Medicine and Hospitals, $200, to investigate the influence of the administration of adrenal cortex extract on the resistance to bacterial toxins.

Grant 214: E. A. Park, professor of pediatrics, and J. A. Pierce, Johns Hopkins University School of Medicine, $200, to investigate the reaction of cartilage.

Grant 215: W. R. Amberson, professor of physiology, University of Tennessee College of Medicine, $250, to investigate hemoglobin perfusion fluids.

Grant 217: Henry B. Richardson, professor of medicine, Cornell University Medical College, $250, to investigate sex hormone therapy.

Grant 218: O. W. Barlow, assistant professor of pharmacology, Western Reserve University School of Medicine, $150, to investigate the effects of a series of analeptics against pentobarbital, tribrom-ethanol and chloral hydrate.

Report of the Committee on Scientific Research for 1934

During the year, sixty-three formal applications have been received. Thirty-seven awards have been made; the amount awarded is $13,128.05. Thirty applications have been declined, one was withdrawn, and five are under consideration. The new grants are for the support of research in various fields of medicine. In all cases the money has been paid to the financial officer of the institution with which the grantee is connected. The grants are disbursed on requisition by grantees and full accounts are kept of the disbursements. Recent reports from the grantees indicate that their work as a rule is making good progress. The final or practically final results of work under forty-eight grants, mostly prior to 1934, have been published or are in actual course of publication; the files in these grants have been closed. The results of work under eleven grants prior to 1934 are in the course of preparation for publication. In the case of twenty-nine grants prior to 1934 active work is still in progress, but in several cases reports on results have been published. Refunds amounting to $304.22 have been made from grants.

The committee begs leave to recommend that as nearly as possible the same appropriation be made for 1935 as for 1934, namely, $12,550 for grants in aid of medical research and $1,200 for the expenses of the committee.

The financial statement for 1934 is presented, also brief accounts of the grants pending at the end of 1933 and a list of the grants made in 1934.

Respectfully submitted.

COMMITTEE ON SCIENTIFIC RESEARCH OF THE AMERICAN MEDICAL ASSOCIATION

LUDVIG HEKTOEN, Chicago, Chairman.
Term expires, 1936.

C. C. BASS, New Orleans.
Term expires, 1937.

JOHN J. MORTON, Rochester, N. Y.
Term expires, 1938.

N. W. JONES, Portland, Ore.
Term expires, 1939.

MARTIN H. FISCHER, Cincinnati.
Term expires, 1940.

GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

New Grants—1934

Grant 310: Lay Martin, Johns Hopkins University, $150 for study of gastric juice.

Grant 311: M. G. Seelig, Barnard Free Skin and Cancer Hospital, St. Louis, $250 for study of radiosensitivity of neoplasms.

Grant 312: C. A. Hellwig, St. Francis Hospital, Wichita, Kan., $100 for study of thyroid function in experimental colloid goiter.

Grant 313: L. A. Emge, Stanford University School of Medicine, $300 for study of relation between pregnancy and tumor growth.

Grant 314: Bernard Portis, Michael Reese Hospital, Chicago, $300 for study of immune reactions of Flexner-Jobling rat tumor.

Grant 315: Phillips Thygeson, University of Iowa, $300 for study of virus diseases of the eye.

Grant 316: Harry Goldblatt, Western Reserve University, $150 for completion of study of hypertension in dogs.

Grant 317: M. D. Overholser, University of Missouri, $300 for study of experimental growths in genital tract of monkeys and relation of anterior hypophysis to diabetes.

Grant 318: Charles J. Sutro, Hospital for Joint Diseases, New York, $300 for work with the fluorescent microscope.

Grant 319: J. Paul Visscher, Western Reserve University, $1,000 for work on a chemical test for pregnancy.

Grant 320: M. L. Tainter, Stanford University School of Medicine, $1,000 for study of metabolic actions of dinitrophenol in man.

Grant 321: Ernest C. Faust, Tulane University, $800 for completion of study on Strongyloides stercoralis.

Grant 322: W. J. Nungester, Northwestern University Medical School, $130 for study of the effect of mucin on infection.

Grant 323: Edward J. Van Liere, West Virginia University, $300 for study of the effect of anoxemia on smooth muscle.

Grant 324: William deB. MacNider, University of North Carolina, $285 for study of artificial circulation in the kidney.

Grant 325: Timothy Leary, Office of Medical Examiner, Boston, $300 for expenses of publication of results of work under grant 229, 1931.

Grant 326: Rachel E. Hoffstadt, University of Washington, $200 for study of protein and carbohydrate fractions of Staphylococcus aureus.

Grant 327: Timothy Leary, Office of Medical Examiner, Boston, $800 for study of cholesterol atherosclerosis in rabbits.

Grant 328: W. R. Tweedy, Loyola University School of Medicine, $300 for further study on parathyroid hormone.

Grant 329: Jane Sands Robb, Syracuse University, $300 for further study of individual cardiac muscle.

Grant 330: Alexander S. Wiener, Jewish Hospital of Brooklyn, $150 for study of agglutinogens and agglutinins of human blood and their heredity.

Grant 331: John R. Murlin, University of Rochester Medical School, $900 for study of the testis hormone.

Grant 332: W. T. Dawson, University of Texas School of Medicine, $100 for study of the cinchona alkaloids.

Grant 333: Arthur J. Geiger and Louis S. Goodman, Yale University, $250 for study of antianemic principle.

Grant 334: H. A. Kemp, W. H. Moursund and H. E. Wright, Baylor University, $267.05 for study of relapsing fever in Texas.

Grant 335: Erwin Brand and G. F. Cahill, New York State Psychiatric Institute and Hospital, $300 for further work on cystinuria.

Grant 336: Charles H. Frazier, Hospital of University of Pennsylvania, $751 for study of autonomic representation of the urinary bladder in the cerebral cortex and in the hypothalamus.

Grant 337: James L. O'Leary, Washington University, $245 for investigation of Loven reflexes.

Grant 338: W. W. Branden, Baylor University, $150 for study of the effect of acidosis on antibodies and resistance to infection.

Grant 339: W. T. Dawson, University of Texas School of Medicine, $100 for study of relation between chemical constitution and physiologic action of cinchona alkaloids.

Grant 340: Louis S. Goodman and Arthur J. Geiger, Yale University, $200 for further study of antianemic principle.

Grant 341: Ludwig A. Emge, Stanford University School of Medicine, $500 for study of pregnancy and tumor growth.

Grant 342: S. S. Lichtman, Mount Sinai Hospital, New York, $400 for study of bile salt metabolism in liver disease.

Grant 343: John Guttman, Post-Graduate Medical School and Hospital, $400 for study of relation between electrical disturbances in cochlea and the sensation of hearing.

Grant 344: Paul L. Day and W. C. Langston, University of Arkansas School of Medicine, $300 for study of effect of withdrawal of vitamin G from diet of monkeys.

Grant 345: Emile Holman, Stanford University School of Medicine, $400 for study by Frederic Fender of prolonged stimulation of the nervous system.

Grant 346: William Antopol, Mount Sinai Hospital, New York, $250 for study of the relationship of acetylcholine to carbohydrate metabolism.

STATE OF WORK UNDER PREVIOUS GRANTS

1. Completed During the Year

Grant 163, 1929: $750 to George Hermann, Tulane University School of Medicine, for the study of problems of the circulation (refund $17.80). The work under this grant has been carried on to completion by Roy H. Turner, assistant professor of experimental medicine, Tulane University. Turner, Roy H., and Sodeman, W. A.: Repeated Determinations of Pulse Velocity on Normal Individuals, *Proc. Soc. Exper. Biol. & Med.* 31:831, 1934. Turner, Roy H.: Studies on the Physiology of the Peripheral Vessels: I. Instruments and Methods, to be offered for publication in *Journal of Clinical Investigation*. Turner, Roy H., and Sodeman, W. A.: Studies on the Physiology of the Peripheral Vessels: II. Repeated Determinations of Pulse Wave Velocity in Normal Individuals and in Those Suffering from Hypertension or Arteriosclerosis, to be offered for publication in *Journal of Clinical Investigation*.

Grant 167, 1929: $500 to Hans Jensen, Johns Hopkins University, for aid in the chemical and physiologic study of toad poisons (refund, $60.81). Jensen, Hans, and Chen, K. K.: Chemical Studies on Toad Poisons, *J. Biol. Chem.* 87:741 and 755, 1930. Jensen, Hans, *Science* 75:53, 1932. Jensen, Hans, and Evans, E. A., Jr.: *J. Biol. Chem.* 106:307, 1934.

Grant 181, 1930: Erwin Brand, New York State Psychiatric Institute and Hospital, $700 for research in cystinuria (refund, $366.67). See grant 302, 1933.

Grant 182, 1930: Icie G. Macy, Merrill-Palmer School, Detroit, $500 for a study of vitamins A and B in human breast milk. Donelson, Eva, and Macy, Icie G.: Human Milk Studies: XI. Vitamin G(B_2) Content of Mixed Milk, *Am. J. Physiol.* 106:420, 1933; Human Milk Studies: XII. The Vitamin B and Vitamin G Content Before and During Maternal Consumption of Yeast, *J. Nutrition* 7:231, 1934. McCosh, Sylvia S.; Macy, Icie G.; Hunscher, Helen A.; Erickson, Betty N., and Donelson, Eva: Human Milk Studies: XIII. Vitamin Potency as Influenced by Supplementing the Maternal Diet with Vitamin A, *ibid.* 7:331, 1934.

Grant 183, 1930: Robert W. Hegner, Johns Hopkins University, $1,500 for study of host-parasite relations in man in continuation of work under previous grants 101 (C. A. Brent Fund) 1926; 125, 1927, and 154, 1929. For list of articles on results of work under this grant, see the report of the committee for 1933. New articles: Hegner, Robert:

The Effects of a High Vegetable Protein Diet on the Trichomonad Flagellates of Rats, *Am. J. Trop. Med.* **13**: 535, 1933; Effects of Environmental Changes and Disinfectants and Antiseptics on Trichomonas Hominis in Culture and in Feces, *Am. J. Hyg.* **19**: 22, 1934; Specificity in the Genus Balantidium Based on Size and Shape of Body and Macronucleus, with Descriptions of Six New Species, *ibid.* **19**: 36, 1934; Intestinal Protozoa of Chimpanzees, *ibid.* **19**: 480, 1934.

Grant 189, 1930: Ralph H. Major, University of Kansas, Lawrence, $500 for study of depressor substances in the brain, liver and pancreas. Major, Ralph H.; Nanninga, J. B., and Weber, C. J.: A Comparison of the Properties of Certain Tissue Extracts Having Depressor Effects, *J. Physiol.* **76**: 487, 1932. Weber, C. J.; Nanninga, J. B., and Major, Ralph H.: Isolation of a Crystalline Depressor Substance from the Brain, *Proc. Soc. Exper. Biol. & Med.* **30**: 513, 1933.

Grant 194, 1930: C. H. Thienes, University of Southern California, Los Angeles, $500 for study of the relationship between the myenteric plexus and ganglions and the mesenteric nerves. Shelter, Lillian, and Thienes, C. H.: Analysis of the Actions of Cocaine on Excised Smooth Muscles, *Proc. Soc. Exper. Biol. & Med.* **28**: 994, 1931. Hendricks,

Financial Statement for 1934

Balance, Jan. 1, 1934	$ 6,390.51
Appropriation for 1934	13,750.00
Refund, grant 133	53.14
Refund, grant 236	17.95
Refund, grant 239	31.28
Refund, grant 260	12.98
Refund, grant 276	20.46
Refund, grant 284	0.60
Refund, grant 285	4.68
Refund, grant 287	8.67
Refund, grant 296	23.13
Refund, grant 302	0.60
Refund, grant 325	79.48
Refund, grant 334	51.25
	$20,444.73

Grants and Expenses Paid in 1934

Grant 310, Lay Martin	$ 150.00
Grant 311, M. G. Seelig	250.00
Grant 312, C. A. Hellwig	100.00
Grant 313, L. A. Emge	300.00
Grant 314, Bernard Portis	300.00
Grant 315, C. S. O'Brien (Phillips Thygeson)	300.00
Grant 316, Harry Goldblatt	150.00
Grant 317, M. D. Overholser	300.00
Grant 318, Charles J. Sutro	300.00
Grant 319, J. Paul Visscher	1,000.00
Grant 320, M. L. Tainter	1,000.00
Grant 321, Ernest C. Faust	900.00
Grant 322, W. J. Nungester	150.00
Grant 323, Edward J. Van Liere	300.00
Grant 324, William deB MacNider	285.00
Grant 325, Timothy Leary	300.00
Grant 326, Rachel E. Hoffstadt	300.00
Grant 327, Timothy Leary	300.00
Grant 328, W. R. Tweedy	300.00
Grant 329, Jane Sands Robb	300.00
Grant 330, Alexander S. Wiener	150.00
Grant 331, John R. Murlin	900.00
Grant 332, W. T. Dawson	100.00
Grant 333, Arthur J. Geiger and Louis S. Goodman	250.00
Grant 334, H. A. Kemp, W. H. Moursound and H. E. Wright	267.05
Grant 335, Erwin Bridel and G. F. Cahill	200.00
Grant 336, Charles H. Frazier	751.00
Grant 337, James L. O'Leary	345.00
Grant 338, W. W. Brandes	150.00
Grant 339, W. T. Dawson	100.00
Grant 340, L. S. Goodman and A. J. Geiger	200.00
Grant 341, Ludwig A. Emge	500.00
Grant 342, S. S. Lichtman	400.00
Grant 343, John Guttman	400.00
Grant 344, Paul L. Day and W. C. Langston	300.00
Grant 345, Emile Holman (Frederic Pender)	400.00
Grant 346, William Autopol	250.00
Clerical expense	600.00
Committee expense	265.76
Printing and supplies	46.22
	$14,040.03
Balance on hand	$ 6,404.70

Max D., and Thienes, C. H.: A Pharmacologic Study of the Inhibitory Mesenteric Nerves to the Intestines, *ibid.* **28**: 993, 1931. See grant 236, 1932.

Grant 201, 1931: J. H. Black, Baylor University College of Medicine, $100 for study of the relation of certain pollen fractions (refund $34.80). Black, J. H., and Shelmire, B.: The Urinary Proteose in Allergy, *J. Allergy* **5**: 373, 1934.

Grant 202, 1931: James T. Case and C. A. Aldrich, Evanston Hospital, Evanston, Ill., $250 for roentgenologic and clinical study of the thymus. Case, J. T.: The Present Status of the Roentgen Diagnosis and Therapy of Persistent Thymus, to be offered for publication in *American Journal of Diseases of Children.*

Grant 210, 1931: Harold E. Himwich, Yale University School of Medicine, $500 for a study of fat metabolism in diabetes. Himwich, Harold E., and Spiers, M. A.: The Degree of Saturation of Blood Fats Mobilized During Diabetes, *Proc. Soc. Exper. Biol. & Med.* **30**: 235, 1931. Brechett, Susan H.; Spiers, Mary A., and Himwich, Harold E.: The Lipoid Components of the Lymph of the Thoracic Duct of the Dog, *Am. J. Physiol.*

Grant 220, 1931: David Polowe, Paterson, N. J., and Memorial Hospital, New York, $100 for a study of the specific gravity of the blood in human cancer. Polowe, David: The Specific Gravity of the Blood in Human Cancer, *J. Lab. & Clin. Med.* **19**: 983, 1934.

Grant 225, 1931: R. S. Cunningham, Vanderbilt University, Nashville, Tenn., $500 toward a study of the cellular reactions in experimental syphilis with respect to the effects of treatment. Cunningham, R. S., and associates: The Cellular Pathology of Experimental Syphilis as Studied by the Supravital Method, *Am. J. Syph.* **17**: 515, 1933. See Grant 261, 1932.

Grant 226, 1931: Warren C. Hunter, University of Oregon Medical School, $100 for a study of the effect of cinchophen on the liver of the dog (refund, $36.07). Hunter, W. C., and Snyder, George A. C.: Experimental Attempt to Produce Hepatic Damage in the Dog by Feeding of Cinchophen, *West. J. Surg., Obst. & Gynec.* **42**: 288, 1934.

Grant 229, 1931: Timothy Leary, Office of the Medical Examiner, Boston, $810 toward a study of the effect of alcohol and insulin on the deposition of cholesterol in the animal body. Leary, Timothy: Human Coronary and Experimental Rabbit Atherosclerosis: A Comparison of Lesions, *New England J. Med.* **209**: 1132, 1933. Experimental Atherosclerosis in Rabbit, *Arch. Path.* **17**: 453, 1934.

Grant 230, 1932: Alexander S. Wiener, Jewish Hospital of Brooklyn, $50 for a study of agglutination N. See grant 296, 1933.

Grant 235, 1932: E. A. Smith, Iowa State College, $100 for study of the effects of illuminating gas and amyl acetate on the rat. (See grant 297, 1933.) Mack, Lillian, and Smith, E. A.: Methylene Blue in Illuminating Gas Poisoning, *Proc. Soc. Exper. Biol. & Med.* **31**: 1031, 1934.

Grant 236, 1932: C. H. Thienes, University of Southern California, $400 for studies on the relation of the mesenteric nerves to the myenteric ganglions and plexuses. (See grant 194, 1930.) Refund, $17.95. Newman, Milton, and Thienes, C. H.: On the Sympathetic Innervation of Guinea-Pig Intestine, *Am. J. Physiol.* **104**: 113, 1933. Hechett, A. J.; Newman, Milton, and Thienes, C. H.: The Reciprocal Activity of the Muscle Coats of the Guinea-Pig Small Intestine, *Arch. internat. pharm et therap.* **46**: 363, 1933.

Grant 246, 1932: W. C. Langston and Paul L. Day, University of Arkansas, $400 for a study of vitamin G deficiency in the monkey, with special reference to cataract. Day, Paul L.; Langston, William C., and Shahen, Carroll F.: Leukopenia and Anemia in the Monkey Resulting from Vitamin Deficiency, to be published in *Journal of Nutrition.*

Grant 248, 1932: Helen C. Coombs, New York Homeopathic Medical College and Flower Hospital, $575 for work on the relationships between epilepsy and tetany. Coombs, Helen C.: Combined Effects of Drugs and Electrical Excitation of Cortical Motor Area in Cats, *Proc. Soc. Exper. Biol. & Med.* **30**: 1, 1932. Coombs, Helen C., and Searle, Donald S.: Calcium Phosphorus of the Blood Serum During Cerebral Anemia, *Am. J. Physiol.* **105**, 1933. Coombs, Helen C.; Searle, D. S., and Pike, F. H.: The Changes in the Concentration of Inorganic Calcium and Phosphate During Convulsions of Experimental Origin, in Cats, Before and After Thyroparathyroidectomy, With and Without Bromide Therapy, *Am. J. Psychiat.* **13**: 761, 1934.

Grant 249, 1932: Arthur H. Smith, Yale University, $350 for a study of the acid-base balance and the osmotic pressure of the blood of stunted albino rats. Brooks, R. O.; Smith, A. H., and Smith, P. K.: Inorganic Salts in Nutrition: VII. Change in Composition of Bone of Rats on a Diet Poor in Inorganic Constituents, *J. Biol. Chem.* **104**: 141, 1934.

Grant 250, 1932: S. S. Lichtman, Mount Sinai Hospital, New York, $400 for work on a method of estimating bile salts in body fluids. (See grants 271, 1932, and 306, 1933.)

Grant 253, 1932: Willard O. Thompson, Rush Medical College, Chicago, $250 for study on the influence of thyroxine on the toxic effects of acrophenamine and acetonitrile. (See grant 268, 1932.)

Grant 255, 1932: Max Wishnofsky, Jewish Hospital of Brooklyn, $100 for work on problems in carbohydrate metabolism. Wishnofsky, Max: Absorption of Dextrose from the Human Gastro-Intestinal Tract, *J. Lab. & Clin. Med.* **19**: 1266, 1934. Wishnofsky, Max, and others: The Influence of Dinitrophenol on Carbohydrate Metabolism, *Arch. Int. Med.* Wishnofsky, Max: The Effect of Equivalent Amounts of Dextrose and Starch on Glycemia and Glycosuria in Diabetics, to be published in *American Journal of the Medical Sciences.*

Grant 261, 1932: R. S. Cunningham, Vanderbilt University, $300 for work on the effects of certain colloidal solutions on experimental syphilis (refund, $1.69). Cunningham, R. S., and associates: The Effect of Trypan Blue on Experimental Syphilis in the Rabbit, *Am. J. Syph.* **17**: 522, 1933. The Effect of Lecithin on Experimental Syphilis in the Rabbit, *ibid.* **18**: 333, 1934. Lowenstein, L.: The Leukocytes in Early Acute Experimental Syphilis in Rabbits, *Am. J. Syph. & Neurol.* **19**: 39, 1935.

Grant 267, 1932: M. S. Dunley (Jane Sands Robb), Syracuse University, $200 for study of the blood supply of individual heart muscle bundles.

Robb, Jane Sands: Evidence for Characteristic Modifications of the Electrocardiogram Produced by Lesions of Ventricular Muscle Bands, *Proc. Soc. Exper. Biol. & Med.* **32**:311, 1933; Progressive Muscular Anemia in the Heart of a Dog, *ibid.* **32**:761, 1934; The Structure of the Mammalian Ventricle, *M. & Prof. Woman's J.* **42**:65, 1934. An exhibit illustrating the individual cardiac muscles was awarded a certificate of Merit, Class 1, Scientific Exhibits, American Medical Association, 1934.

Grant 268, 1932: W. O. Thompson, Rush Medical College, $250 for study of relation between thyroxine and glutathione oxidation system. Thompson, W. O., and others: Effect of Alkali on the Absorption of Thyroxine from the Gastro-Intestinal Tract, *Arch. Int. Med.* **52**:809, 1933. Thompson, W. O., and others: The Effect of Diiodotyrosine on the Basal Metabolism in Myxedema, *J. Clin. Investigation* **12**:29, 1934. Thompson, W. O., and others: The Effect of Various Compounds of Thyroxine on the Basal Metabolism, *Endocrinology* **18**:228, 1934.

Grant 270, 1932: Edwin F. Hirsch, St. Luke's Hospital, Chicago, $500 for determination of copper and "active" iron in tissues in infection and toxaemia. Loehe, A.; Rubash, D. O., and Shinn, L. E.: Copper and Iron in the Motivation of Cellular Metabolism, *J. Infect. Dis.* **54**:51, 1934.

Grant 271, 1932: S. S. Lichtman, Mount Sinai Hospital, New York, $75 to complete methods for estimating bile salts in normal body fluids. (See grants 250, 1933, and 306, 1933.)

Grant 272, 1932: Joseph L. Donnelly, University of Cincinnati, $750 for work on the coagulation of biologic materials. Donnelly, J. L.: On the Physiological Effects of Radio Waves, *Science* **78**:290, 1933.

Grant 274: William C. Rose, University of Illinois, Urbana, $300 for study of unknown dietary essential in casein. Caldwell, C. T., and Rose, W. C.: Feeding Experiments with Mixtures of Highly Purified Amino Acids: IV. The Supplementing Effect of Casein Fractions Obtained by the Carbobenzoic Procedure, *J. Biol. Chem.* **107**:45, 1934. Caldwell, C. T., and Rose, W. C.: Feeding Experiments with Mixtures of Highly Purified Amino Acids, *ibid.* **107**:57, 1934.

Grant 275, 1933: John Guttman, Post-Graduate Medical School and Hospital, New York, $400 for study of electric current produced by cochlea on stimulation by sound. Guttman, John: Electrical Disturbances in the Cochlea Produced by Sound, *Laryngoscope*, 1933. Guttman, John, and Barrera, S. E.: Persistence of Cochlear Electrical Disturbance on Auditory Stimulation in the Presence of Cochlear Ganglion Degeneration, *Am. J. Physiol.* **109**:704, 1934.

Grant, 283, 1933: Philip B. Armstrong, Cornell University Medical College, $150 for study of drug action in relation to enervation of the heart. Armstrong Philip B.: The Rôle of the Nerves in the Action of Acetylcholine on the Embryonic Heart, to be submitted to *Journal of Physiology*.

Grant 285, 1933: M. G. Seelig, Barnard Free Skin and Cancer Hospital, St. Louis, $200 for a study of the carcinogenic action of dibenanthracene 1:2:5:6 and of scarlet red. Refund, $4.68. Seelig, M. G.: Dibenanthracene 1:2:5:6 as a Carcinogenic Agent, *Am. J. Cancer* **20**:827, 1934.

Grant 288, 1933: James L. O'Leary, Washington University, $175 for work on the nervous mechanisms controlling blood pressure. O'Leary, J. L.; Heinbecher, P., and Bishop, G. H.: The Fiber Constitution of the Depressor Nerve of the Rabbit, *Am. J. Physiol.* **109**:274, 1934. Bishop, G. H.; Heinbecher, P., and O'Leary, James: The Significance of Frequency, Number of Impulses and Fiber Size in Vasomotor Responses to Vagus and Depressor Nerve Stimulation in the Rabbit, *ibid.* **109**:409, 1934.

Grant 289, 1933: Harry J. Deuel Jr., University of Southern California, $300 for further study of the sexual variation in carbohydrate metabolism. Deuel, H. J., Jr., and others: The Sexual Variation in Carbohydrate Metabolism: III. The Comparative Glycogen and Fat Content of the Liver and Muscles of Rats and Guinea-Pigs, *J. Biol. Chem.* **104**:519, 1934. Grunewald, C. F.; Cutler, C. H., and Deuel, Harry J., Jr.: The Sexual Variation in Carbohydrate Metabolism: V. The Metabolism of Dioctic Acid in Normal and Castrated Male and Female Rats With and Without Theelin, *ibid.* **105**:35, 1934.

Grant 290, 1933: Harry Goldblatt, Western Reserve University, $150 for study of experimental hypertension in dogs. (See grant 316, 1934.)

Grant 291: C. Alexander Hellwig, St. Francis Hospital, Wichita, $50 for work on the thyroid gland and on thyrotropic substance in human urine. Hellwig, C. A.: Morphogeographic and Experimental Studies on the Etiology of Goiter, *West. J. Surg., Obst. & Gynec.* **41**:453, 1933. Hellwig, C. A.: Experimental Colloid Goiter, *Endocrinology* **18**:197, 1934.

Grant 292, 1933: Ludwig A. Emge, Stanford University School of Medicine, $300 for study of transplantable benign tumors during pregnancy. Emge, L. A., and Wolff, L. M. R.: The Influence of Pregnancy on Experimental Tumor Growth in the White Rat: Volumetric Studies on Adenofibroma and Fibroma, *West. J. Surg., Obst. & Gynec.* **42**:45, 1934.

Grant 293, 1933: Arthur Grollman, Johns Hopkins University, $200 for study of the effects of adrenal cortex extract. Howard, E., and Grollman, Arthur: The Effect of Extracts of the Adrenal Cortex on Growth and the Reproductive System of Normal Rats, with Particular Reference to Intersexuality, *Am. J. Physiol.* **107**:480, 1934. Grollman, Arthur, and Firor, W. M.: Studies on the Adrenal: IV. The Oral Administration of the Adrenal Cortical Hormone and the Use of Fresh Glands Therapeutically, *Bull. Johns Hopkins Hosp.* **54**:216, 1934.

Grant 295, 1933: W. R. Twoody, Loyola University School of Medicine, $350 for chemical studies on parathyroid hormone. (See also grants 143 and 146, 1928, grant 216, 1931, and grant 328, 1934) I. Schour, I.; Twoody, W. R., and McJunkin, F. A.: The Effect of Experimental Hyperparathyroidism on the Incisor of the Rat, *Proc. Soc. Exper. Biol. & Med.* **31**:517, 1934; The Effect of Single and Multiple Doses of Parathyroid Hormone on the Calcification of the Dentin of the Rat Incisor, *Am. J. Path.* **10**:321, 1934. Twoody, W. R.; Bell, W. P., and Vicente-Rio, C.: Further Chemical Studies on a Parathyroid Hormone, *J. Biol. Chem.*

Grant 296, 1933: Alexander S. Wiener, Jewish Hospital of Brooklyn, $100 for work on agglutinogens M and N. Refund, $23.13. (See grant 230, 1932.) Wiener, Alexander S., and Rothberg, Sidney: Heredity of the Subgroups of Group A and Group AB, *Human Biol.* **5**:577, 1933. Wiener, A. S.; Zinsher, R., and Selhorst, J.: The Agglutinogens M and N of Landsteiner and Levine, *J. Immunol.* **27**:355, 1934. Wiener, A. S.: Heredity of the Agglutinogens M and N: IV. Additional Theoreticostatistical Considerations, to be published in the *Human Biology*.

Grant 298, 1933: Lewis H. Hitzrot, Philadelphia General Hospital, $100 for study of the therapeutic effect of alternate negative and positive pressure. Hitzrot, Lewis H., and Landis, Eugene M.: The Clinical Value of Alternating Suction and Pressure in the Treatment of Advanced Peripheral Vascular Disease, to be published in *American Journal of the Medical Sciences*.

Grant 300: J. M. Wolfe, Vanderbilt University, $100 for study of histology of anterior hypophysis. Ellison, E. T., and Wolfe, J. M.: The Effect of Castration on the Anterior Hypophysis of the Female Rat, *Endocrinology* **18**:555, 1934. Wolfe, J. M.; Ellison, E. T., and Rosenfeld, L.: Morphological Studies on the Anterior Pituitaries of Mature Female Rats Receiving Injections of Pregnancy Urine Extracts, *Anat. Rec.* **60**:357, 1934. Wolfe, Jack Morris; Phelps, Doris, and Cleveland, Rachel: The Anterior Hypophysis of the Rabbit During Oestrus and Pseudopregnancy, *Am. J. Anat.* **55**:363, 1934. Wolfe, J. M.: Morphological Comparison of Anterior Pituitaries of Normal Castrated Female Rats and Those Receiving Injections of Pregnancy Urine Extracts, *Proc. Soc. Exper. Biol. & Med.* **32**:184, 1934. Wolfe, J. M.: Comparative Quantitative Effects of Castration in Mature and Immature Female Rats, *ibid.* **32**:186, 1934. Campbell, Mary; Wolfe, J. M., and Phelps, Doris: Effect of Feeding Thyroid on Anterior Hypophysis of the Female Albino Rat, *ibid.* **32**:305, 1934. Wolfe, J. M.: Anterior Pituitaries of Infantile Female Rats Receiving Injections of Pregnancy Urine Extract, *ibid.* **32**:214, 1934. Wolfe, J. M.: Reaction of the Anterior Pituitaries of Immature Female Rats to Injection of Pregnancy Urine Extracts, *J. Physiol.* **110**:139, 1934. Wolfe, J. M.: The Normal Level of the Various Cell Types in the Anterior Pituitaries of Mature and Immature Rats and Further Observations on Cyclic Histologic Variations, *Anat. Rec.* **61**:321, 1934.

Grant 302, 1933: Erwin Brand and G. F. Cahill, New York State Psychiatric Institute and Hospital, $250 for research on cystinuria. (See grant 181, 1930.) Brand, Erwin; Cahill, George F., and Harris, M. H.: Metabolism of Various Sulphur Compounds in Cystinuria, *Proc. Soc. Exper. Biol. & Med.* **31**:348, 1933. Brand, Erwin, and Cahill, George F.: Further Studies on Metabolism of Sulphur Compounds in Cystinuria, *ibid.* **31**:1247, 1934. Brand, Erwin: Congenital Anomalies of Metabolism with Special Reference to Cystinuria and Myopathies, *Bull. New York Acad. Med.* **10**:389, 1934.

Grant 306, 1933: S. S. Lichtman, Mount Sinai Hospital, New York, $350 for further study on estimation of bile salts in body fluids. (See grants 250 and 271, 1932.) Lichtman, S. S.: A New Procedure for the Estimation of Bile Salts in Body Fluids Based on Bile Salt Hemolysis, *J. Biol. Chem.* **107**:717, 1934.

Grant 307, 1933: E. B. Marshall Jr., Johns Hopkins University, $200 for study of the action of iodine compounds on experimental parenchymatous goiter in guinea-pigs. Friedgood, H. B.: The Iodine Remission in Experimental "Exophthalmic Goiter" of Guinea-Pigs, *J. Pharmacol. & Exper. Therap.*

Grant 316, 1934: Harry Goldblatt, Western Reserve University, $150 for study of hypertension in dogs. (See grant 290, 1933.) Goldblatt, Harry, and others: Studies on Experimental Hypertension: I. The Production of Persistent Elevation of Systolic Blood Pressure by Means of Renal Ischemia, *J. Exper. Med.* **59**:347, 1934.

Grant 325, 1934: Timothy Leary, Boston, $300 for expenses of publication of results of work under grant 229, 1931. Refund, $79.48. Leary, Timothy: Experimental Atherosclerosis in the Rabbit, *Arch. Path.* **17**:453, 1934.

2. Incomplete

A. Work under the grant completed, account rendered of expenses but results not published fully:

Grant 118, 1927: $1,000 to Edward Reynolds and E. A. Hooton, Harvard University, for study of the mechanism of erect posture.

Grant 133, 1928: $715 to F. Lowell Dunn, University of Nebraska, for spectrophotometric analysis of biologic fluids. Dunn, F. Lowell: A Cylindrical Rotating Sector Photometer, *Rev. Scient. Instruments* **2**:807, 1931. Refund, $53.14.

Grant 203, 1931: W. J. Merle Scott, University of Rochester School of Medicine and Dentistry, $300 toward a study of the Rôle of the adrenal cortex in pyogenic infections (refund, $64.22). Scott, W. J. Merle, and others: The Influence of Adrenal Cortex Extract on the Resistance to Certain Infections and Intoxications, *Endocrinology* **17**:529, 1933.

Grant 209, 1931, and grant 343, 1932: Wilbur A. Selle, University of Texas School of Medicine, $400 for a study of the carbohydrate metabolism in its relation to the growth of tumors.

Grant 233, 1932: Dudley W. Bronk, University of Pennsylvania School of Medicine, $350 for studies on the nervous regulation of the circulation. Bronk, D. W., and Ferguson, L. K.: Impulses in Cardiac Sympathetic Nerves, *Proc. Soc. Exper. Biol. & Med.* **30**:139, 1932.

Grant 259, 1932: Daniel A. McGinty, Emory University, $150 for study of lactic acid, dextrose and oxygen, absorption and carbon dioxide production by heart muscle (refund, $125.49).

Grant 265, 1932: S. W. Ranson, Northwestern University, Chicago, $400 for study of structure and function of cutaneous nerves in man. Ranson, S. W.: Cutaneous Sensation, *Science* **78**: 395, 1933. (See grant 299, 1933.)

Grant 273, 1933: Gregory Shwartzman, Mount Sinai Hospital, New York, $400 for study on antibodies to Rous sarcoma agent by local skin reactivity.

Grant 284, 1933: Helen C. Coombs, New York Homeopathic Medical College and Flower Hospital, $600 for study of the bromide treatment of experimental convulsions.

Grant 299, 1933: S. W. Ranson, Northwestern University, $250 for study of cutaneous nerves in man. (See grant 265, 1932.)

Grant 304: Frederic A. Gibbs, Boston City Hospital, Boston, $200 for work on the convulsive center in the cat brain.

B. Active work still in progress:

Grant 162, 1929: $100 to J. P. Simonds, Northwestern University Medical School for a study of the action of cinchophen and its derivatives on the liver. Churchill, T. P., and Van Wagoner, F. H.: Cinchophen Poisoning, *Proc. Soc. Exper. Biol. & Med.* **28**: 581, 1931. Van Wagoner, F. H., and Churchill, T. P.: Production of Gastric and Duodenal Ulcers in Experimental Cinchophen Poisoning, *J. A. M. A.* **99**: 1859, 1932. Churchill, T. P., and Manaberde, D. O.: Experimental Production of Gastric and Duodenal Ulcers in Dogs in Cinchophen Poisoning, *Proc. Soc. Exper. Biol. & Med.* **30**: 825, 1933. Van Wagoner, F. H., and Churchill, T. P.: Production of Gastric and Duodenal Ulcers in Experimental Cinchophen Poisoning of Dogs, *Arch. Path.* **14**: 860, 1932.

Grant 174, 1930: Alfred R. Ross, College of Medical Evangelists, Loma Linda, Calif., $1,455 for study of hay fever pollens in the Southwest.

Grant 179, 1930: George T. Pack, Memorial Hospital, New York, $300 for a study of certain clinicopathologic problems of melanoma. (See grant 231, 1932.)

Grant 196, 1931: Gilbert Dalldorf (Robert L. Dickinson), Grandlands Hospital, Valhalla, N. Y., $200 for a study of the human uterus by casts and in other ways (refund, $94.00).

Grant 218, 1931: Clayton J. Lundy, Rush Medical College, Chicago, $1,000 toward making animated motion pictures of the actions of the heart in health and in disease. See description of film showing normal heart action in THE JOURNAL, Dec. 23, 1933, page 2078. Honorable Mention, Scientific Exhibit, A. M. A., 1933.

Grant 231, 1932: George T. Pack, Memorial Hospital, New York, $500 to complete an analysis of 300 cases of melanoma. (See grant 179, 1930.)

Grant 238, 1932: Harold E. Himwich, Yale University, $1,000 to study the relation of the autonomic nervous system to metabolism and effect of alcohol on metabolism. Himwich, H. E., and associates: Effects of Alcohol on Metabolism, *Am. J. Physiol.* **102**: 57, 1932; Metabolism of Alcohol, *J. A. M. A.* **100**: 651, 1933.

Grant 239, 1932: Victor C. Jacobsen, Albany, $1,000 for a study of transplantable mouse melanoma. Jacobsen, Victor C., and Klinck, Gustavus H., Jr.: Melanin: I. Its Mobilization and Excretion in Normal and in Pathologic Conditions, *Arch. Path.* **17**: 141, 1934. Jacobsen, Victor C.: Melanin: II. A Review of Chemical Aspects of the Melanin Problem, *ibid.*, p. 391.

Grant 240, 1932: William D. McNally, Rush Medical College, $650 for a study of the effect of tobacco tar on the lungs of rats and other animals. McNally, W. D.: The Tar in Cigaret Smoke and Its Possible Effects, *Am. J. Cancer* **16**: 1502, 1932.

Grant 247, 1932: Wilson D. Langley, University of Buffalo, $250 for work on the formation of acetone bodies in diabetic animal tissue.

Grant 254, 1932: J. Lisle Williams, McCormick Institute, Chicago, $300 for work on decreased dextrose tolerance in acute infectious diseases.

Grant 266, 1932: Herbert S. Landes, Loyola University, Chicago, $400 for study of the mechanics of residual urine.

Grant 269, 1932: M. M. Wintrobe, Johns Hopkins Hospital, $250 for study of vertebrate red corpuscles. Wintrobe, M. M.: Variations in the Size and Hemoglobin Content of Erythrocytes in the Blood of Various Vertebrates, *Folia Haematol.* **51**: 32, 1933.

Grant 276, 1933: Jessie L. King, Goucher College, Baltimore, $75 for study of effect of cortical extract on adrenalectomized rats.

Grant, 277, 1933: Gustav Zechel, University of Illinois College of Medicine, $360 for study of growing malignant cells by moving photomicrographs.

Grant 278, 1933: Carl C. Speidel, University of Virginia Medical School, $100 for study of the myelin nerve sheath with polarised light. (See grant 303, 1933.)

Grant 279, 1933: E. C. Faust, Tulane University, $800 for continuation of studies on Strongyloides stercoralis.

Grant 280, 1933: W. T. Dawson, University of Texas School of Medicine, $200 for work on the relations between the chemical constitution and toxicity of cinchona alkaloids. Dawson, W. T., and others: Hydrocinchonidine and Hydrocinchonine in Malaria, *Am. J. Trop. Med.* **13**: 437, 1934.

Grant 281, 1933: Arthur Knudson and Lloyd Ziegler, Albany Medical College, $325 for study of the remote effects of rickets in rats.

Grant 282, 1933: Maurice B. Visscher, University of Illinois College of Medicine, $200 for study of the mechanical efficiency of the heart.

Grant 286, 1933: F. H. Pike, Columbia University, $600 for study of the effects of successive experimental lesions of the nervous system.

Grant 287, 1933: Thomas D. Masters, Springfield Hospital, Springfield, $100 for work on available dextrose in certain common foodstuffs.

Grant 294, 1933: Robert Hegner, Johns Hopkins University, $300 for a study of the relation between intestinal starch and infections with protozoa.

Grant 297, 1933: Erma A. Smith, Iowa State College, $150 for study of effect on the rat of sublethal amounts of illuminating gas.

Grant 301, 1933: Allen D. Keller, University of Alabama, $500 for study of functions of brain stem.

Grant 303, 1933: C. C. Speidel, University of Virginia Medical School, $250 for study of living nerves. (See grant 278, 1933.) Speidel, Carl Caskey: Growth, Irritation and Repair of Nerves, *Arch. f. exper. Zellforsch.* **18**: 328, 1934.

Grant 305, 1933: John R. Murlin, University of Rochester, $300 for study of the effect of sex hormones on energy metabolism.

Grant 308, 1933: John L. Ulrich, Johns Hopkins University, $250 for study of the reflex system in the cat.

Grant 309, 1933: Carroll L. Birch, University of Illinois School of Medicine, $300 for work on assay of urine for sex hormone of the anterior pituitary.

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the year ending Dec. 31, 1934

Reserve Invested as at Dec. 31, 1933	$1,895,831.38	
Bonds Purchased (Cost)	366,949.26	
	$2,262,780.64	
Less Bonds Called	38,000.00	$2,224,780.64
Balance for Investment Dec. 31, 1933	$ 177,524.89	
Interest on Investments	85,745.51	
	$ 263,270.40	
Less Treasurer's Check on Bonds Purchased	200,000.00	63,270.40
Invested and Uninvested Reserve as at Dec. 31, 1934		$2,288,051.04

DAVIS MEMORIAL FUND

Balance Fund Dec. 31, 1933	$6,623.20	
1934 Interest on Bank Balance	149.83	
Total Fund as at Dec. 31, 1934, on Deposit		$ 6,773.03

HERMAN L. KRETSCHMER, Treasurer.

AUDITOR'S REPORT

To the Board of Trustees, January 25, 1935.
American Medical Association, Chicago, Illinois.

Dear Sirs:

In accordance with your instructions, we have made an examination of the Balance Sheet of the American Medical Association, Chicago, Illinois, as at December 31, 1934, and of the Income Account for the year 1934. In connection therewith, we examined or tested accounting records of the Association and other supporting evidence and obtained information and explanations from officers and employees of the Association; we also made a general review of the accounting methods and of the operating and income accounts for the year, but we did not make a detailed audit of the transactions. We now submit our report on the examination, together with related statements as enumerated in the index appended hereto.

In our opinion, based on such examination, the accompanying Balance Sheet and relative Income Account fairly presents the position of the Association as at December 31, 1934, and the result of its operations for the year ended on that date, subject to the following qualifications and observations:

(1) The inventories of Materials, Supplies and Work in Progress, in the amount of $65,952.62, are stated in accordance with affidavits sworn to by responsible officials of the Association and have not been confirmed by us in any way.

(2) In accordance with the established practice of the Association, no provision has been made for (a) accrued interest on bonds, (b) membership dues unpaid, (c) accrued salaries and wages, (d) accrued property taxes for the year 1934, and (e) accrued legal fees.

(3) Subscriptions paid in advance represent an estimated amount based on cash received for subscriptions for the year 1935, received in the month of December 1934. This conforms with the method used in prior years.

(4) Advanced payments on publications represent an estimated amount of prepaid subscriptions to Hygeia $111,982.62 plus $11,895.08 received in advance for January advertising and directory sales and service.

Under date of August 15, 1934, the Association property was appraised by the American Appraisal Company. The value of the property as shown by the appraisal was considerably in excess of the book value of the property. It was decided by the Board of Trustees not to place the appraisal value on the books of account. As recommended by the appraisal company the rate of depreciation was reduced on buildings from 5% to 2½% and on machinery and equipment from 20% to 5% of the diminishing book values.

We have received a letter from Messrs. Loesch, Scofield, Loesch and Burke, acting as attorney for the Association, stating that during the year ended December 31, 1934, all lawsuits pending against the Association have been definitely terminated without liability for damages against the Association. We have also received a certificate from an official of the Association stating that there are no contingent liabilities at December 31, 1934.

Fidelity insurance is carried against the undermentioned officers and employees of the Association in the amounts here stated:

Dr. Olin West, General Manager	$10,000.00
Dr. Herman L. Kretschmer, Treasurer	10,000.00
E. C. Shelly, Cashier	10,000.00
E. A. Hoffman, Assistant Cashier	2,000.00
Sundry Employees (eight, $1,000.00 each)	8,000.00
Total Fidelity Insurance	$40,000.00

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly, PEAT, MARWICK, MITCHELL & Co.

STATEMENTS

EXHIBIT "A"

BALANCE SHEET AS AT DECEMBER 31, 1934

ASSETS:		
Property and Equipment (at cost, less depreciation):		
Real Estate and Building	$	681,954.32
Machinery		103,388.20
Type and Metal		12,963.54
Furniture and Equipment		50,915.77
Chemical Laboratory		2,750.77
Total Property and Equipment	$	851,972.60
Investments (at cost):		
U. S. Government Securities $1,181,405.26		
Railroad, Municipal and Other Bonds 1,043,375.38		2,224,780.64
Cash held by Treasurer for Investment		63,270.40
Temporary Investment—Certificate of Deposit		100,000.00
Cash in Banks and on Hand		244,278.74
Accounts Receivable:		
Advertising $ 67,255.85		
Co-operative Medical Advertising Bureau 8,820.10		
Reprints 3,231.29		
Directory, 13th Edition 10,262.00		
Miscellaneous 3,786.15		93,355.39
Inventories of Materials, Supplies and Work in Progress		65,952.62
Expenditures on Publications in Progress		37,901.93
Prepaid Expenses—Insurance, etc.		4,929.40
Total		$3,686,443.72
LIABILITIES:		
Accounts Payable:		
Co-operative Medical Advertising Bureau	$	8,593.48
Miscellaneous		1,053.36
	$	9,646.84
Subscriptions Paid in Advance		114,686.77
Advance Payments on Publications		123,877.20
Net Worth:		
Association Reserve Fund	$	250,000.00
Building Reserve Fund		750,000.00
Capital Account:		
Amount thereof as at December 31, 1933 $2,183,466.41		
Adjustment of Reserve for Taxes for 1932 2,317.98		
2,185,784.39		
Net Income for the Year ended December 31, 1934 252,528.02	2,438,312.41	
Net Worth as at December 31, 1934		3,438,312.41
Total		$3,686,443.72

EXHIBIT "B"

INCOME ACCOUNT

FOR THE YEAR ENDED DECEMBER 31, 1934

JOURNAL:		
Gross Earnings:		
Fellowship Dues and Subscriptions	$	603,192.58
Advertising		727,112.14
Jobbing		84,168.42
Reprints		3,535.75
Books		9,573.62
Insignia		5,034.39
Miscellaneous Sales		6,590.43
Interest		543.74
Gross Earnings from Journal	$	1,439,751.07
Operating Expenses—Schedule "1"		825,781.09
Net Earnings from Journal	$	613,969.98
Miscellaneous Income:		
Rents $ 1,200.00		
Sundry Publications 43,256.16		44,456.16
Association Income:		
Income from Investments $82,402.41		
Miscellaneous Income 1,081.91		83,484.32
Gross Income	$	741,910.46
Association Expenses—Schedule "2" $350,297.48		
Miscellaneous Expenses—Schedule "2" 139,084.96		489,382.44
Net Income	$	252,528.02

SCHEDULE "1"

JOURNAL OPERATING EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1934

Wages and Salaries		$	399,598.04
Editorials, News and Reporting			12,012.75
Paper—Journal Stock			180,099.48
Paper—Miscellaneous			757.56
Electrotypes and Engravings			16,834.42
Binding			621.56
Ink			6,395.90
Postage—First Class			32,238.64
Postage—Second Class			49,598.78
Journal Commissions			14,781.14
Collection Commissions			1,148.33
Discounts			27,195.66
Express and Cartage			4,739.15
Exchange			3,216.35
Office Supplies			3,748.23
Telephone and Telegraph			1,360.67
Office Jobbing			11,581.57
Power and Light			7,294.30
Factory Supplies			10,132.90
Repairs and Renewals—Machinery			5,963.03
Miscellaneous Operating Expenses			21,198.06
Losses on Bad Debts and Sales of Equipment			2,641.05
Total Journal Operating Expenses Before Provision for Depreciation		$	816,977.57
Depreciation on Equipment (Computed on diminishing balances):			
Machinery	% 5 $5,441.48		
Furniture and Equipment	% 5 2,253.90		
Factory Equipment	% 5 423.86		
Type	% 5 308.73		
Metal	% 5 373.55		8,803.52
Total Journal Operating Expenses		$	825,781.09

SCHEDULE "2"

ASSOCIATION AND MISCELLANEOUS EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1934

Association Expenses:		
Association	$	99,983.43
Health and Public Instruction		16,004.12
Pharmacy and Chemistry		37,328.70
Food Committee		12,210.01
Chemical Laboratory		22,738.57
Medical Education and Hospitals		67,137.41
Therapeutic Research		6,432.74
Legal Medicine and Legislation		30,081.58
Bureau of Investigation		19,972.07
Bureau of Medical Economics		20,878.00
Physical Therapy		13,557.79
Bureau of Association Exhibits		3,418.28
Laboratory Depreciation (5% on diminishing balances)		144.78
Total Association Expenses	$	350,297.48
Miscellaneous Expenses:		
Insurance and Taxes	$	12,756.35
Legal and Investigation		10,680.25
Building Expenses		27,388.10
Building Depreciation (2.5% on diminishing balances)		10,080.40
Fuel		5,721.73
Sundry Publications		72,458.13
Total Miscellaneous Expenses	$	139,084.96

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

The report of the Judicial Council is withheld from publication pending a meeting of the Council.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

I. Commissions of the House of Delegates

1. At the Milwaukee session the House of Delegates referred to the Council on Physical Therapy and the Council on Medical Education and Hospitals a resolution introduced by Dr. J. Gurney Taylor requesting the formulation of standards for schools of occupational therapy. All of the eleven existing schools have been visited. The Council has conferred with experienced workers in this field and now presents for approval, in supplement A, the Essentials of an Acceptable School of Occupational Therapy.

2. At the Cleveland session the House of Delegates adopted a resolution, introduced by Dr. G. Henry Mundt, to the effect that the staffs of hospitals approved for intern training should comprise only members in good standing in their local county societies. A letter has been sent to all intern hospitals advising them of this action. When the next census of hospitals is taken, the Council will be in a position to know whether further action is needed.

3. A resolution introduced by Dr. D. C. McKenney of the Section on Gastro-Enterology and Proctology was referred to the Board of Trustees and the Council on Medical Education and Hospitals for determination of methods of examination and certification in these specialties. The Council expects to be able to develop a comprehensive plan for the identification of qualified physicians specializing in these and related fields of medicine.

4. The House of Delegates also referred to the Council a recommendation of President Lewis that assistance be given to state societies in establishing postgraduate courses of instruction. Two excellent papers on this subject were presented at the Annual Congress on Medical Education, Hospitals and Licensure in February. The Council begs leave to report progress.

5. The resolution of the Section on Radiology, introduced by Dr. Albert Soiland, was also referred to the Council. On investigation and conference with certain leaders in the field of radiology, it was developed that no single method of compensating the radiologist for his service is universally applicable; that without violating the Principles of Medical Ethics of the Association his remuneration may be in the form of salary, fees or commission, or any combination of these; but that in no case should there accrue to the hospital a substantial profit over and above the reasonable cost of maintaining the department nor should the patient be exploited through excessive fees. While these principles have been clearly and repeatedly affirmed by the House of Delegates, the application of the principles to individual cases sometimes involves complex accounting problems. It is believed that where differences of opinion arise they should be adjudicated by the local medical societies.

6. The resolution on anesthesia, introduced by Dr. James N. Vander Veer, was also referred to the Council. At the February Congress this subject was presented by Dr. F. H. McMechan, secretary general of the International Anesthesia Research Society, and discussed by physicians, surgeons and hospital administrators as well as by the director of the Bureau of Legal Medicine of the Association. Opinions expressed were so widely divergent that the Council deems it inexpedient to take action at this time.

7. A resolution from the Section on Ophthalmology condemning the practice of medicine by optometrists was presented by Dr. Emory Hill. Although not specifically referred to the Council, steps have been taken to bring this action to the attention of hospitals on the Council's approved (registered) list.

II. Survey of Medical Schools

8. In the fall of 1933 the Council determined that a comprehensive resurvey of medical education was needed and to this end solicited the cooperation of the Association of American Medical Colleges and the Federation of State Medical Boards of the United States. The Trustees authorized a special appropriation and Dr. Herman G. Weiskotten of Syracuse was added to the Council's staff. Inspections were begun in September 1934. To date forty-five medical schools have been visited, chiefly in the Eastern and Southern sections of the country. In all cases Dr. Weiskotten has been accompanied by a member of the Council or a representative of one of the cooperating societies. As a result of these observations, the Council found it necessary at its February meeting to withdraw approval from the University of West Virginia School of Medicine.

The facts elicited by questionnaires and conditions reported by the inspectors will, it is believed, afford a substantial basis for a thoroughgoing revision of standards and a reappraisal of the aims and methods of medical education. Already it has been discovered that some schools are accepting poorly trained students, most of whom ultimately fail. The Council has issued a general warning against the admission of larger classes than can properly be accommodated or than can reasonably be expected to satisfy approved scholastic standards.

9. The Council, together with the College Association, the Federation of State Medical Boards of the United States and the National Board of Medical Examiners, has worked out a procedure for restricting the number of poorly trained students who matriculate in the universities of Europe because they cannot gain admission to the medical schools of the United States and Canada. Unfortunately, the extramural schools of Scotland do not cooperate with us and admit each year large numbers of applicants who have already been rejected in this country.

III. Inspections

10. During the past year, the Council's staff has visited 592 hospitals: with reference to registration 175, with regard to approval for training interns 157, for residency approval 30, and 230 tuberculosis sanatoriums. The net gain of intern hospitals was 22 and of residency hospitals 32, and the decrease in the number of registered hospitals in 1934 was 103.

11. The survey of hospitals and sanatoriums caring for patients with tuberculosis, as well as departments of general hospitals devoted to this purpose, has been completed. A report of this undertaking is in preparation and will be available, probably, in a few months.

12. In addition to schools of occupational therapy, referred to in paragraph 1, the Council has made inspections of schools for the training of physical therapy and laboratory technicians. Analysis of these reports and the formulation of standards will proceed during the coming year.

IV. Publications

13. The Council has prepared and distributed a list of textbooks, reference works and journals suitable for a hospital library. It has also contributed substantially to five special issues of The Journal.

14. The Council desires to call particular attention to the Hospital Number, issued March 30, 1935. The distribution of hospitals is graphically represented by state maps, and the significant fact that the country is already oversupplied with general hospitals is incontrovertibly shown. Furthermore, it is demonstrated that, in those sections of the country where the ratio of beds to population is low and where some are inclined to assume that additional hospitalization is needed, the actual utilization of existing facilities is also low. The conclusion is inescapable that where the public demands hospital facilities they have been provided, and that in sections where the public does not avail itself of more than 50 per cent of the opportunities for hospital care that now exist it would be futile to provide more.

15. In the State Board Number of THE JOURNAL, it is shown that, during 1934, 7,730 physicians were licensed to practice medicine in the various states. Of these, 5,435 represent actual additions to the number in practice. At this rate, according to the report of the Commission on Medical Education, the ratio of physicians to population will steadily increase. This situation greatly enhances the menacing importance of the fact that a number of states continue to examine and license graduates of unrecognized schools. After a quarter of a century of effort on the part of the Association to raise the standards of medical practice, there are still four states which flagrantly evade the responsibility to protect the lives of their citizens.

Respectfully submitted.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS.
RAY LYMAN WILBUR, Chairman.
REGINALD FITZ.
MERRITTE W. IRELAND.
CHARLES E. HUMISTON.
FREDERIC A. WASHBURN.
J. H. MUSSER.
FRED MOORE.
WILLIAM D. CUTTER, Secretary.

SUPPLEMENT A

ESSENTIALS OF AN ACCEPTABLE SCHOOL OF OCCUPATIONAL THERAPY

I. ORGANIZATION

1. A school of occupational therapy should be incorporated under the laws regulating associations which are operated not for profit. The control should be vested in a board of trustees rather than an individual. This board should be composed of public spirited men or women receiving no financial benefits from the operations of the schools. The trustees should serve for fairly long and overlapping terms. If the choice of trustees is vested in any other body than the board itself, this fact should be clearly stated. Officers and faculty of the school should be appointed by the board.

2. Affiliation with a college, university or medical school is highly desirable but is not an absolute requirement.

3. Schools of occupational therapy should not be operated by hospitals independently. It is understood, however, that hospitals are needed for practice training and especially for graduate training in the special branches of occupational therapy.

II. FACULTY

1. The school should have a competent teaching staff, graded and organized by departments. Appointments should be based on thorough education and training and successful teaching experience. Nominations for faculty positions should be made in accordance with academic custom. The staff should include not less than one regular salaried instructor and one registered occupational therapist. The question of full time and part time appointments is not as important as the qualifications of the instructors, who should be specialists or exceptionally well trained and well qualified in the lines they are teaching.

III. PLANT

1. The school should own, or enjoy the use of, buildings sufficient in size to provide adequate lecture rooms, class laboratories and administration offices. Equipment should be adequate for teaching and training. Anatomic charts, manikins and dummies should also be provided. There should be a library receiving regularly all the leading periodicals pertaining to occupational therapy, current numbers of which should be easily accessible to the students.

IV. ADMINISTRATION

1. *Supervision.*—There should be careful and intelligent supervision of the entire school by the dean, director or other executive officer, who, by training and experience, is fitted to interpret the prevailing standards and who is clothed with sufficient authority to carry them into effect.

2. *Records.*—There should be a good system of records showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work. Schools should require that students be in actual attendance within the first week of each annual session and thereafter. Except for good cause, no credit should be given for any course when attendance has been less than 80 per cent.

3. *Credentials.*—The admission of students to the occupational therapy school must be in the hands of a responsible committee or examiner, whose records shall always be open for inspection. Documentary evidence of the student's preliminary education should be obtained and kept on file. When the occupational therapy school is an integral part of the university, this work usually devolves on the examiner or registrar.

4. *Advanced Standing.*—At the discretion of the administration, advanced standing may be granted for work required in the occupational therapy curriculum which has been done in other accredited institutions. Official verification of previous work should be obtained by direct correspondence. Preliminary qualifications should also be verified and recorded.

5. *Number of Students.*—The number of students admitted to the training course should not be excessive. In practical work of a laboratory nature the number of students that can be adequately supervised by a single instructor is, in general experience, about fifteen; in lectures the number may be much larger. A close personal contact between students and members of the teaching staff is essential.

6. *Discipline.*—All training schools reserve the right to drop a student at any time for any cause which the school authorities deem sufficient.

7. *Publications.*—The school should issue, at least biennially, a bulletin setting forth the character of the work which it offers. Such an announcement should contain a list of the members of the faculty with their respective qualifications.

V. PREREQUISITES FOR ADMISSION

Requirements for admission shall be:

1. *Age.*—The admission of candidates should be governed by the fact that it is required that each student be not less than 21 years old at graduation.

2. *Education.*—All candidates must furnish proof of having completed a high school education or its equivalent. In addition, it is desirable that all candidates, except those for the degree course, shall have had at least one year, and preferably two years, of further education or successful experience in college, art school, social service, nurse's training or the commercial field.

Candidates for admission to a training course in a college or university which is combined with work leading to a bachelor's degree should be required to comply with the regular entrance requirements of the institution concerned.

3. *Character.*—All candidates should be required to present evidence of good character and general fitness, the evidence of which should be investigated and duly weighed by the school concerned.

4. *Health.*—All students should be given a physical examination under the supervision of the school as soon as practicable after admission, and this examination should be repeated annually. The first examination, at least, should include a roentgen examination of the chest.

VI. CURRICULUM

1. *Length of Course.*—The minimum length of the course should be twenty-five calendar months (100 weeks) of full time training. The course should include not less than sixteen months (sixty-four weeks) of theoretical and technical work, and not less than nine months (thirty-six weeks) hospital practice-training under competent supervision; all as set forth in detail in succeeding sections.

2. *Distribution of Time.*—The two years devoted to theoretical training should include not less than sixty semester hours, of which not less than thirty semester hours should consist of

systematic instruction and not less than twenty-five hours of laboratory procedures. In special cases a variation of 10 per cent is permissible.

3. The hours devoted to theoretical training should be still further subdivided as follows:

(a) Biologic Sciences include:	
Anatomy, Physiology, Neurology, Kinesiology, Psychology, Psychiatry	15 Semester Hours
(b) Social Sciences	4
(c) Theory of Occupational Therapy	4
(d) Clinical Subjects include:	
Orthopedics, Tuberculosis, Cardiac Diseases, Blindness and Deafness, Contagious Diseases (including Bacteriology if this subject is not given elsewhere), General Medical and Surgical Conditions	4
(e) Electives	3
Total	30

4. Practical work in the various occupations should be allotted not less than twenty-five semester hours. The following subjects should be covered:

Design	Leather
Textiles	Plastic Arts
Wood	Recreation
Metal	Miscellaneous

5. The curriculum outlined above should be in effect not later than Jan. 1, 1939.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

At this annual session the two greatest organizations of physicians on the American continent are brought together for participation in a joint program intended to advance the cause of scientific medicine, to promote the public health and to cement good will and fellowship further between the physicians of two great nations. We of the American Medical Association are honored by the presence of many members of the Canadian Medical Association and are grateful for the contributions that will be made to the scientific programs by a number of distinguished physicians from our neighbor country.

The Council on Scientific Assembly has had its usual meetings during the past year and has given official attention to all matters that have been brought before it.

The regular annual conference of section secretaries with the Council on Scientific Assembly was held in Chicago, Nov. 10, 1934. The President-Elect, the Secretary, the Chairman of the Council and the Chairman of the Central Program Committee of the Canadian Medical Association were invited to attend this conference and were present. These distinguished gentlemen rendered valuable aid in connection with the preparation of the official program for the Atlantic City session.

The usual arrangements for the meetings of the sections of the Scientific Assembly have been made. Sessions on Anesthesia, Military Medicine and the History of Medicine will be held in the Section on Miscellaneous Topics.

An excellent program has been prepared for the General Scientific Meetings to be held on Monday and Tuesday, June 10 and 11.

No resolutions or memorials have been submitted to the Council during the year.

Respectfully submitted.

FRANK H. LAHEY, Chairman.
IRVIN ABELL.
JAMES E. PAULLIN.
FRANK SMITHIES.
CYRUS C. STURGIS.
JAMES S. McLESTER, President-Elect. } Ex officio.
MORRIS FISHBEIN, Editor, THE JOURNAL. } Ex officio.
OLIN WEST, Secretary. } Ex officio.

Medical Economics

CALIFORNIA AND SICKNESS INSURANCE

A REPORT BY MORRIS FISHBEIN, M.D.
Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Since the House of Delegates of the California Medical Association went on record as favoring compulsory sickness insurance, some progress has occurred in that state in making the action effective. On April 12, 1935, the California legislature published as a part of the *Senate Daily Journal* the report of the Senate Committee on the "Investigation of the High Cost of Sickness." There are various points of view as to how this senate committee happened to be appointed, and particularly with the extraordinary title, emphasizing medical costs, under which it makes its report. Rumor has it that Dr. Walter B. Coffey, chief surgeon of the Southern Pacific Railroad, was primarily responsible—and he confirmed this impression in his statement to the legislature. The preliminary statements of the report indicate that certain foundations were expected to assist largely in making the surveys: "This authorization of the California Senate was plainly predicated on the belief that certain foundations, philanthropists and others interested would welcome the opportunity to make ample contributions to carry on this work. This assumption was warranted because certain well financed foundations had expressed such active interest in the subject and were spending much money to ascertain what could be done in a legislative way." It is significant that the results of the survey duplicate the results of similar surveys made by these foundations in other places. Yet financial assistance was not given by them.

The committee was empowered by the resolution to choose its own officers and drafted Dr. Celestine J. Sullivan as its coordinator-secretary. The record of *Mr.* Sullivan, for he is that kind of doctor, is well known to physicians who have followed the course of medical affairs in California. Some years ago he pleaded with California doctors to take up advertising. The answer to this survey, as the answer to most of the others that have been conducted under similar auspices in this country, is that the surveys found out exactly what they were predestined to find out with the setups that they had.

The report of the Senate Committee on the "Investigation of the High Cost of Sickness" opens with a general statement by the senate committee on the nature of scientific advancement and then emphasizes the importance of the insurance method as a means of meeting the costs. Thus, it says: "Health service insurance will prevent such economic and social disaster, and a vast amount of unnecessary sickness and thousands of unnecessary deaths." The California survey contacted 20,560 families, 1,112 physicians, 646 osteopaths, 828 dentists, 192 hospitals and 96 clinics. It is pointed out that California has a higher proportion of doctors to the population than any other state and that hospital facilities are unevenly distributed. During 1935, state institutions operated at a 90 per cent capacity while private institutions operated at approximately 53 per cent. Hospitals throughout California are suffering with the poor financial conditions, and a considerable amount of legislation has been introduced into the California legislature that would save the hospitals, but, if enacted, would also put the hospitals in the practice of medicine.

The California medical economic survey indicated that in 1933 one third of the doctors were making net professional incomes of less than $2,000, one half less than $3,000, and three fourths less than $5,000. It must be pointed out, however, that the questionnaire method was used in this survey and that only 1,112 doctors out of the total profession of 10,490 in California replied. It may be assumed that the doctors in the higher income levels did not reply. One half of the osteopaths who replied earned less than $2,000, and five sixths earned less than $4,000. Of the 18,863 families studied, 15 per cent had in 1933 incomes of less than $500, 39 per cent less than $1,000, and 51 per cent less than $1,200. Thus more than one half of the people of California, according to the report, receive less than a living income. Only 4 per cent of the families concerned reported incomes of more than $5,000. The figures also seem to indicate that the families in the lower income brackets

required more medical care than the families in the higher income brackets. The survey also reported that the lower income classes did not get the care they needed, as based on their own replies to the questionnaires. The survey concludes with the suggestion that families with incomes of $1,200 or less cannot afford unexpected medical and dental charges between $100 to $500 during the year, yet 12 per cent of the families studied reported such charges. The report indicates that the investigators believe their survey is representative of conditions throughout California.

The report also discusses the distribution of medical, eye and dental care for families on relief, and indicates that physicians bear the heaviest burden for the sick, giving freely of their services to those unable to pay and lowering their fees for those able to pay only partially. The physicians bear 70 per cent of the total amount due for services to families under $3,000 annual income, and approximately one half of the amount owed by the highest income group.

The survey cost about $100,000 and duplicates the results of the Michigan and other surveys made by similar surveyors.

Continuing the discussion, it is pointed out by the senate committee that the action of California is likely to be looked on as a model for American legislation in this field, and it asks for a definite separation of cash benefits from health service insurance. The California law proposed is based on foreign experience. The senate committee then presents certain amendments offered to proposed legislation in this field, which will be analyzed in THE JOURNAL.

To this report there are a considerable number of appendixes. The first is an address given by Senator E. H. Tickle in March 1934 at a University of California conference on government, at which Dr. Ray Lyman Wilbur presided. In this address Senator Tickle presented a definite bias in favor of a sickness insurance system. He listed foreign groups that have already adopted such methods, and he emphasized the right of the California legislature to pass such legislation.

The second appendix is a statement of Senator Tickle at the public hearings held by the Committee in December 1934. In this statement Senator Tickle supported the majority report of the Committee on the Costs of Medical Care. He attacked the minority report and particularly Dr. Olin West and the American Medical Association, giving the impression that Dr. Olin West wrote and was responsible for this report—an impression absolutely unwarranted and untrue. He charged that the British health insurance system had been misrepresented in this country by American Medical Association propaganda but indicated that California did not recommend the panel system.

The statement of Senator Tickle was supplemented by a statement from Chester H. Rowell, who was introduced by Celestine J. Sullivan as chairman of the Social Health Insurance Commission of 1917-1918. At that time Mr. Sullivan was opposed to sickness insurance, but he has since apparently had a change of heart. Mr. Rowell modestly concludes his statements by stating that the medical "men in California . . . probably know more about it than any number of men anywhere else in the United States."

The next speaker was Dr. French of the Western Hospital Association, who supported the plan of sickness insurance for the low income groups; and then Frank McDonald, industrial accident commissioner, who is also president of the State Building Trades Council of California, indicated that the building trades would support legislation for compulsory health insurance in California. The next speaker was Dr. Walter B. Coffey, who indicated that he had formerly opposed compulsory sickness insurance but that he was very much in favor of a system that would provide adequate care at a reasonably monthly rate. He described the sickness payment system used by employees of the Southern Pacific Railroad and the Southern Pacific Hospital Association. His statement was supported by the head of the railway engineers of the Pacific Coast.

The next statement was by Dr. T. Henshaw Kelly, chairman of the Council of the California Medical Association. Dr. Kelly indicated that an attempt was being made to crystallize the opinion of the California medical profession and introduced Dr. Harry H. Wilson, secretary of the Survey Committee of the association. Dr. Wilson described the scope of the survey as of that date.

Dr. Roy Green, representing the dental profession, asked some delay pending action by the federal government. Celestine J. Sullivan indicated that any federal plan would involve coercion of the various states and that the federal government can enact only certain laws for the District of Columbia.

A statement was also received from the California Osteopathic Association unanimously approving the insurance plan as outlined by Senator Tickle and Mr. Rowell.

The next speaker, Rodney Yoell, urged the establishment of compulsory sickness insurance in California and recommended that organized medicine sit with the senate committee to work out a proper solution. Dr. Yoell concluded:

> Now, I believe also that medicine, organized medicine, will sit down with you and work out a happy solution to this problem; because I know in times past that no call has ever been made by an existing civilization on the medical profession wherein the medical profession has been derelict in its duty, and it has been unhearing and unmindful of that call. You must be a little patient with us within the next few weeks, in our deliberations, and with our contentions; but I do believe this: That just as you gentlemen of this senate committee, and you men and women representing the various hospital associations—the great Catholic sisterhoods, the non-Catholic hospitals, the great universities, the labor organizations, the industries—are sitting in this room now and giving an honest intent and a keen mind and an absolutely penetrating judgment on this existing problem and its solution—so, too, will the medical profession come forward and join you in this study.
>
> We of California, who were born on this soil, and those who live from the bounty of this soil, love this state: we love this, our California, and we feel absolutely that, in your hands and in the hands of the fellow citizens of this state, a solution to this problem will be worked out which will provide for every solvent person competent, adequate medical care, that will retain to the medical profession the right to the competitive effort of practice, and that marching forward shoulder to shoulder, a great load of preventable want and misery will be lifted from the shoulders of the people of California.

Representatives of various railroad employee associations in connection with the Southern Pacific Railroad also spoke in favor of the legislation.

Dr. Morton Gibbons, representing Stanford University, said that most physicians felt that health insurance is inevitable. He said that the medical profession would not oppose a health insurance law or compulsory health insurance but that they want to be sure that the law will give proper consideration to medicine.

Senator Tickle said that the Canadian report pointed out that there had been a 39 per cent decrease in sickness in England since they had their system of sickness insurance in effect. (This statement is so preposterous that it is comical. The figures actually show more visits to doctors and the sickness rates and death rates of the United States are better than those of other civilized countries of approximately the same populations.—ED.)

Celestine J. Sullivan pointed out that the University of California provides medical service to 9,800 students in residence at an annual cost of $17.86 per student. Professor May, economist of the University of California, brought up the data published by the Milbank Memorial Fund indicating the fear of the medical profession in relationship to sickness insurance. He pointed out that, while he was a member of the advisory council of the California Medical Economic Survey, his opinion had not been asked in drawing conclusions. Dr. Harry Wilson said that the opinions had been received and that they would be given consideration. Professor May said that he would like to have the faculty of the University of California receive the same services as were given to the students. He also indicated the desirability, as pointed out by Mr. Kingsbury of the Milbank Fund, that the state participate in the payment for sickness insurance.

Dr. John Graves said that there are innumerable California families and California citizens who cannot secure adequate medical care without going to the verge of pauperization and that the needs must be met.

Mr. Von Ellsworth, representing the California Farm Bureau Federation, felt that because of the transient population of California there should be a larger taxing unit than the county unit to provide for the medical needs of the indigents.

Dr. Jacob C. Geiger, health officer of San Francisco and president of the San Francisco County Medical Society, felt that there must be unanimity and loyalty among the medical

profession. He urged that the San Francisco County Medical Society cooperate with the state medical association and pointed out that the European experiences could not be applied to this country. Dr. Geiger did not believe that the doctors should be paid for caring for the indigent sick when they were used for teaching purposes by the universities.

Dr. Harry Wilson pointed out that the California Medical Association did not approve the Public Health League for fear that it would misrepresent medicine to the community.

Dr. Sloman, representing the dental association, pointed out that they had not adopted any definite views in relationship to compulsory sickness insurance and that no system of sickness insurance of which he had knowledge provides adequate service for dentistry. He did, however, hope that some system might be worked out in California that would be satisfactory.

Dr. Philip King Brown condemned the individuality of the medical profession. He attacked the Public Health League as fighting health insurance and expressed his belief that the compulsory sickness insurance would not lower the standards of medical care if it was run by medical men. He also expressed his disapproval of the Alameda County plan and the San Fernando plan and said that the statements of Frederick L. Hoffman on sickness insurance were outside the facts.

Dr. Alson R. Kilgore expressed his belief that some form of distribution of medical care would have to be developed, and he was led by Celestine J. Sullivan into an expression of approval for health insurance. Mr. E. R. Zion spoke in behalf of groups that want to get their own group insurance and hoped that some proper system would be developed for such groups.

Dr. Loos of the Ross-Loos clinic described the service of his group and asked what would be done in the matter of payment of physicians under the proposed compulsory sickness insurance bill.

Dr. Coffey indicated that he was one of the originators of the resolution introduced into the senate two years ago providing for the present investigation and providing for a compulsory sickness insurance system.

The next appendix indicates the authority given to Celestine J. Sullivan by the senate committee and the resolutions adopted by the California Medical Association in relationship to compulsory sickness insurance. The California Medical Association's resolutions demanded that:

1. The patient shall have absolutely free choice of physician and hospital.

2. The medical profession shall determine the scope, the extent, standards, quality, compensation paid for and all other matters and things related to the medical and medical auxiliary services rendered under this system.

3. There shall be no provision for cash benefit.

4. The patient shall receive adequate treatment and the physician shall receive adequate compensation.

5. The foregoing principles shall be maintained with such modification thereof as may from time to time be recommended or approved by the profession; be it further

Resolved, That the California Medical Association offer its full aid and cooperation to the interim committee of the senate and of the state of California charged with the study of this problem to the end and that any measure which shall be passed establishing a health insurance system at the 1935 session of the California legislature shall contain the above principles; and be it further

Resolved, That there be formed a special committee authorized and empowered to act herein, constituted as follows: The legislative committee of the association and three members of the association to be appointed by the speaker of the house of delegates.

This is the resolution which commits the state medical association to work with the interim committee in developing a sickness insurance law. Similar resolutions were adopted by the California Dental Association.

The next appendixes provide tables and statistical data of the California Medical-Economic Survey, and another appendix gives the compulsory national plans adopted in various foreign countries.

A special appendix, marked "Appendix G," is devoted to the American Medical Association. This bears the delicate touch of the literary style of Celestine J. Sullivan and was apparently written within the last two weeks. It describes the action taken by the special session of the House of Delegates of the American Medical Association, February 15 and 16. The statement says:

The law of the Medes and the Persians which thereth not was followed by the A. M. A. House of Delegates at Chicago in reiterating "its opposition to all forms of compulsory sickness insurance." The A. M. A. delegates in Chicago reacted like the travelers described by Newman: "Nothing which meets them carries them forward or backward to any idea beyond themselves."

One of the returning delegates expressed the opinion that those distinguished doctors were men of personal charm, good golfers and scientifically and financially self assured. [This will be news to the House of Delegates.—ED.] It is not surprising that those delegates with lucrative practices among citizens with ample incomes fail to grasp the pressing problem of the lower income groups. They are not socially conscious of the grievous evils of the present system which are revealed by tables contained in the report of this senate committee. They would not, of course, prolong the agony caused by the present system if they understood the problem. If they understood the problem they would follow the leadership of the House of Delegates of the California Medical Association who have looked ahead with clear vision, and, seeing that the present system must be changed to meet the demands of today, recommended compulsory health insurance so that citizens within the lower income brackets may be assured adequate care at prices they can easily afford.

Then the resolution commends the California Medical Association for its action and attacks the American Medical Association for attempting to usurp the rights of the state. It also points out that the American Medical Association in 1930 adopted a resolution "that each state should be left free to formulate its own health program." There follows further attack on the actions of the House of Delegates of the American Medical Association. Then appears the statement:

Testimony given by California physicians at the public hearing of the senate committee in San Francisco showed the extensive propaganda against health insurance conducted by the A. M. A. in this state. We are informed by members of the California Medical Association that Dr. Morris Fishbein's address on health insurance before the Dental Association in Oakland did not have any official sanction of the medical profession. [This is untrue!—ED.] In fact, Dr. Fishbein, although editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, failed to get an invitation to address any of the constituent county societies of the California Medical Association. [This is also untrue!—ED.] Dr. Fishbein is an entertaining talker [This is true!—ED.] and California welcomes every visitor. The California Medical Association, after due deliberation, having gone on record for compulsory health insurance, very consistently refused to permit Dr. Fishbein to confuse the issue by inciting prejudice and opposition. Dr. Fishbein's anti-health insurance addresses in California would not merit our attention if they were not designed to undermine the constructive action of the California Medical Association. The A. M. A. was powerful enough to make the American College of Surgeons recede from its position on health insurance; it was potent enough to make the Michigan State Medical Society lay down and turn face downward its expensive survey and report on health insurance, but the A. M. A. was impotent to delay or dismay the California Medical Association by whose. [The statements relative to the American College of Surgeons and the Michigan State Medical Society are untrue!—ED.] The narrow viewpoint of the official A. M. A. on the shores of Lake Michigan compare in breadth and depth with the broader vision of the C. M. A. on the shores of the Pacific as the lake compares to the ocean.

There seems to be something about Chicago, Ill., that adversely affects the minds of medical men. This is not the first time that Chicago doctors indicated that they are not constructively interested in the problem of reduction of the high costs of illness.

There follows a report by California newspapers of an interview given by Dr. Louis Schmidt in Chicago and four or more pages about Louis Schmidt taken from Chicago newspapers. This, of course, does nothing but cloud the issue.

The final appendix gives the address by Dr. Morris Fishbein before the meeting of the American Academy of Political and Social Science in Philadelphia, Feb. 7, 1934, and the address by William Trufant Foster on the same occasion. The document then concludes with some cartoons, favorable to sickness insurance, from California newpapers, and contains a list of publications consulted by the senate committee in developing its opinions. It is significant that very few of the publications of the American Medical Association seem to have been brought to the committee's attention.

Peas, Peanuts and Beans.—The meat substitutes of vegetable origin are chiefly those seeds known as legumes, of which peas, peanuts and navy, kidney, lima and pinto beans are the most commonly used varieties.—Newburgh, L. H., and Mackinnon, Frances: The Practice of Dietetics, New York, Macmillan Company, 1934.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

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SATURDAY, MAY 4, 1935

REPORTS OF AMERICAN MEDICAL ASSOCIATION OFFICERS

In this issue of THE JOURNAL appear the reports of the various officers, bureaus and committees of the American Medical Association, which by action of the House of Delegates are published one month in advance of the annual session in order that the members of the Association and the delegates may be informed concerning the activities of the Association during the year. Attention is called particularly to the statement of policy adopted by the House of Delegates at the special session in February, which constitutes today the policy of the American Medical Association on the subject of sickness insurance and economic security. This report appears on page 1608.

It will be seen from the Treasurer's and Auditor's reports that the finances of the Association are in excellent condition and that the number of members and of Fellows has increased over the number enrolled in the preceding year. Thus far the Association has weathered satisfactorily the financial depression. Because of the nature of the times, the Bureau of Economics has been under constant strain during the past year carrying out investigations of economic problems and advising physicians throughout the country concerning special problems in various states.

Especial interest attaches also to the report of the Bureau of Legal Medicine and Legislation, which begins on page 1616. Here physicians will find up-to-the-minute accounts of the present status of important legislation in various states and also of legislation now before Congress. Here also is the information relative to Emergency Relief, the present status of food, drug and cosmetic legislation, and many similar matters.

Every physician will find this report of the greatest importance in relation to his daily work. All the other councils and bureaus of the Association have been exceedingly active in providing for the needs of the medical profession and in carrying out the policies adopted by the House of Delegates, encouraging scientific advancement and aiding medical research.

EXPLAINING CALIFORNIA

Under the heading Medical Economics in this issue of THE JOURNAL appears a transcript of hearings and various official actions of the legislature and medical bodies in California in relationship to sickness insurance. Politically the situation in California is exceedingly complicated. The medical profession seems to be playing the rôle it thinks best under the circumstances and the conditions. Nevertheless the assumption of this rôle has brought about some peculiar situations. For example, the California Dental Association invited the Editor of THE JOURNAL two years ago and again in May 1934 to address the annual session of that body. The California Medical Association at that time gave its approval to the visit. Because of the developments in the political situation, state medical officers of California apparently thought it wise more recently that the point of view of the American Medical Association be prevented as far as possible from reaching the membership of the California Medical Association. Notwithstanding the apparent desire of some state officers to avoid presentation of the point of view of the American Medical Association, the medical society in Fresno invited the Editor to address a joint meeting of doctors and dentists in that community. Addresses were made also before three public forums, and several meetings of physicians and dentists. The point of view of the American Medical Association was circulated widely in the press through interviews and reports of addresses. As will be seen from a reading of the outline which appears under the department of Medical Economics, certain lay political leaders in California rejoiced—without warrant—at the suppression of the American Medical Association point of view.

Apparently the officers of the state medical society feel that compulsory health insurance is sure to come in California and that their only hope of obtaining some recognition for the medical point of view is to cooperate fully with the interim committee appointed by the senate of California in response to a resolution recommended by Dr. Walter B. Coffey two years ago. As was explained in an editorial in THE JOURNAL, April 6, page 1243, a number of bills are before the California legislature, including six or seven bills for compulsory sickness insurance, one bill opening all the hospitals of the state to all the people regardless of ability to pay, and another licensing corporations to practice medicine in California. Moreover, the state is overrun with cultists of various types and with all sorts of corporation practice, group practice, club practice, industrial practice and similar schemes. The survey made jointly by the California State Medical Association and the interim committee of the senate, like most such surveys, hardly seems to have scratched the real surface of medical conditions, yet the results of the survey are cited in support of the action to which the various bodies concerned in the legislation seem to have been rather largely committed before the survey was

undertaken. It is clear that the Milbank Fund and other foundations have been active in propaganda in California.

As the onlooker from without, the Editor would venture the prediction that all will not be as rosy in California as it may now seem to the bespectacled, rose-colored vision of some of the proponents representing the California Medical Association. It should be obvious from the statements that have been made and the hearings that have been held that the very factors in medical care which the profession will demand will not be favorably received by the political group, who will eventually dominate the sickness insurance system in California. The dental profession, some assert, has received inadequate consideration in the proposed legislation and will perhaps oppose the bill that has been offered. The medical profession will perhaps find itself ultimately in a situation in which it will have to oppose the legislation for which it is now responsible, mainly because it decided to compromise rather than to fight to the finish on the principle and the issue.

A complete study of all that has occurred in California indicates to any one who has some understanding of our American political system the difficult path which the leaders of California medicine are treading. Perhaps they will find their way successfully out of the morass without engulfing their profession in a system which will lead to a lowering of the standards of medicine and the quality of medical care in that state.

THEORIES ON THE GENESIS OF GASTRODUODENAL ULCER

The circulatory theory of the genesis of gastric ulcer advanced by Virchow and Hauser in 1853 suggested that such ulcers are produced by an infarction of a terminal blood vessel with consequent necrosis, the starting point for the digestive action of the gastric juice. In this theory the rôle of the excessive gastric secretion assumed especial importance and was considered the decisive factor by Riegel, Boas, Sippy, von Bergmann and, in fact, the majority of clinicians.

Chronic ulcers, it was pointed out, occur only in that portion of the gastro-intestinal tract which is exposed to the action of the hydrochloric acid; viz., the stomach and the first two inches of the duodenum. They are rare in the cardia. When the jejunum is exposed to the action of gastric juice following a gastro-enterostomy for ulcer, marginal peptic ulcer develops not infrequently. However, such ulcer has never been observed when the gastro-enterostomy is performed for gastric cancer. Of particular interest are the peptic ulcers of Meckel's diverticulum, in which histologic studies revealed the presence of islands of gastric mucosa in the diverticulum. The ulcer itself is analogous to the marginal peptic ulcer. Ulceration here is ascribed to the peptic effect of the gastric juice on the adjacent intestinal mucosa.

The wave of enthusiasm for stomach resections, which began about twenty years ago and was advanced with particular fervor in Germany, supplied abundant material for histologic studies and a new point of view. In all cases of gastric or duodenal ulcer, gastritis or duodenitis appeared. The inflammatory areas frequently contained multiple small, oval, round and linear erosions, the largest of which could be recognized macroscopically as superficial erosions. The fact that he failed to find any change in the blood vessels in these areas was stressed by Konjetzny,[1] who did not observe any evidence of hemorrhage, anemic necrosis or hemorrhagic infarction. Inflammatory changes in the mucosa without any evidence of peptic digestion were, however, observed with great regularity. Konjetzny, Puhl, Moscowitz, Kalima and others, supported by histologic studies, established that ulcerative gastritis or duodenitis is the important factor in the pathogenesis of the ulcer disease. Inflammatory gastritis and duodenitis were the precursors as well as the accompanying anatomic factors and explained the chronic course of the disease with its remissions and exacerbations. These observers denied the importance of pepsin hydrochloric acid in the conversion of an erosion into an ulcer. The neurogenic-spasmogenic theory of von Bergmann[2] was based on the clinical observation that many of the patients with ulcer exhibited disturbances of the vegetative nervous system. Eppinger and Hess suggested that vagotonia provoked spasms of the muscularis and of the muscularis mucosae, leading to areas of ischemia, which favored the formation of erosions and ulcers. A spastic condition of neurogenic origin operating on the vessels and the muscular apparatus was the causative factor. But experiments on severing the vagi and on extirpating the sympathetic and the celiac plexus gave contradictory results, and the hypothesis that all bearers of ulcer are vagotonic or sympatheticotonic did not find acceptance.

The mechanical-functional theory advanced by the Aschoff school was based on the existence of a special anatomic unit. The gastric channel of Waldeyer, "the magenstrasse," occupying the lesser curvature, is the seat of 90 per cent of all gastric ulcers. The contention that food and gastric juices move along this path to reach the pylorus, thus exposing it to greater mechanical and chemical injury than the rest of the gastric mucosa, is not supported by the more recent roentgenologic studies. The accumulated clinical and experimental observations force the clinician and the experimental worker once more to look to the digestive power of the gastric secretion as the most important factor in the genesis of the ulcer. The next step was an attempt to produce ulcers in normal gastric mucosa by increasing the amount of the secretion as well as its

1. Konjetzny, G. E.: Entzündliche Genese des Magenduodenalgeschwürs, Arch. f. Verdauungskr. 36:189 (Dec.) 1925.
2. von Bergmann, G.: Berl. klin. Wchnschr. 55:524, 1918.

digestive power. Bürkle-de la Camp[3] was able to produce ulcers in rats by subjecting them to starvation and to hypodermic injections of histamine in doses sufficient to stimulate the secretion of the gastric juice but not sufficient to cause spasmodic contractions of the gastric vessels or the musculature. The ulcers thus produced exhibited a tendency to invasion, bleeding and perforation. These effects could be produced only in fasting stomachs; but fasting alone without injections of histamine failed to produce ulceration of the gastric mucosa. Sectioning of both vagi did not cause ulcer formation unless combined with histamine injections. The rôle of the gastric secretion in the genesis of ulcer was demonstrated even more strikingly in Silbermann's[4] experiments. Silbermann established esophageal fistulas in dogs and subjected them to sham feedings, thus stimulating the psychic phase of the gastric secretion. The stomach continued to secrete after each feeding a secretion of acid concentration and digestive power five times as great as that of the normal secretion. When examined from fourteen to forty-nine days later, all the dogs showed ulcerations in varying stages of development. Silbermann's experiments demonstrated that excessive gastric secretion of high digestive power is capable of producing severe gastric lesions and fibrinoid necrosis and that the experimental ulcers are localized almost exclusively in the pyloric region.

Current Comment

FEDERAL PLANS FOR SOCIAL SECURITY

As our readers no doubt realize, the social security bill has passed the House of Representatives by a tremendous vote and is now under consideration by a committee of the United States Senate. Washington observers predict that its consideration may be somewhat delayed because of other important legislation which has priority. In the final bill the social service board is removed from the supervision of the Department of Labor and placed directly under the President. However, the infant and maternal welfare plans and the care of the handicapped are left to the individual states, subject however to approval of such plans by the Children's Bureau in the Department of Labor. There is, moreover, a considerable contribution for public health work to be conducted under the United States Public Health Service. The words "health insurance" and "sickness insurance" do not appear in the bill. It is interesting in this connection to read the words of Raymond Moley in his periodical *Today*, principally because Mr. Moley, it is understood, represents largely the administration's point of view:

> Health insurance is not included. A violent controversy on this subject is raging in the medical profession, and the government is wisely refraining from action until public sentiment, in one way or another, shall have crystallized. In any event, provision for old age and unemployment benefits are the major parts of a program and can immediately be put into effect.

This statement by Mr. Moley is, of course, subject to the criticism that a "violent controversy on this subject" is not raging in the medical profession. The opinion of the organized medical profession, as expressed by the membership of the American Medical Association through the House of Delegates, was unanimously opposed to compulsory sickness insurance on either a federal or a state basis. If, however, the President and Congress are waiting for public sentiment to crystallize, the medical profession must realize that the forces of propaganda in behalf of sickness insurance are multiple and wealthy and that the medical profession must take far more interest in this matter and extend itself to the utmost if its views are to be brought satisfactorily before the American people.

LOS ANGELES COUNTY MEDICAL SOCIETY BUILDING

Amidst the political turmoil assailing California, as indicated elsewhere in this issue, the medical profession in Los Angeles has been benefiting to a considerable extent through the development of new headquarters for its county medical society. Apparently the wisdom and foresight of Dr. Harland Shoemaker and others in official positions many years ago developed the necessary site and the funds for the conduct of this fine venture. The new building contains an assembly hall seating from 600 to 800 people, a lunch room, recreation rooms, a library of some 30,000 volumes with subscriptions to several hundred leading medical periodicals and adequate provision for extension of the stacks devoted to periodicals, and rooms for literary medical research. The arrangements are among the finest available to a county medical society anywhere in the United States. They constitute a model for similar organizations elsewhere as to both the quality of the accommodations and the financial provisions for the future maintenance of the building and equipment.

"PRIVATE WORLDS"

Currently in the motion picture houses there is being projected a film called "Private Worlds," based on a novel of the same name by Phyllis Bottome, a well known English writer, who we understand herself spent several years in such an institution as a nurse. In developing this film, we are informed, the Walter Wanger Studios employed a competent psychiatrist full time. As a result of his advice, no doubt, the film meets medical criterions particularly as relates to the portrayal of insanity. The chief value of the film is in its emphasis to the public of the change that has taken place in psychiatry with the introduction of understanding and mildness in place of the penal methods and brutality of a previous century. Significant indeed is the portrait of Pinel, which hangs over the desk of one of the physicians who plays a leading part in this picture. Such a film is bound to be helpful to the cause of modern psychiatry by giving the public a true insight into this work. If there is any adverse criticism to be made it is over the rather sudden projection of the ordinary layman into an atmosphere of insanity without more preparation of his mind for

3. Bürkle-de la Camp, H.: Deutsche Ztschr. f. Chir. 220:31 (Sept.) 1929.
4. Silbermann, I. S.: Zentralbl. f. Chir. 54:2385 (Sept. 17) 1927.

what he will see. The scenes showing occupational therapy and doctor-patient contacts are most effective, indeed so much so that one regrets their brevity. The only inconsistency that was apparent to several medical observers was the emergency surgery performed by a psychiatrist—a rather theatrical performance, which might have been much more conceivable in an English nursing home than in an American institution of this type. One rejoices particularly that the studio which produced this film avoided the usual unfortunate spectacle of a Napoleon wandering about in search of an empire or other methods of introducing cheap comedy through the portrayal of unfortunate mental patients. A fine restraint was exercised in this regard and the producer deserves special commendation for such recognition of artistic values. Physicians everywhere will find this film interesting and, because of the facts that have been presented, a real advance in the portrayal of medicine on the motion picture screen.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, HOSPITALS AND LICENSURE

Thirty-First Annual Meeting, held in Chicago, Feb. 18 and 19, 1933

(Continued from page 1528)

DR. J. H. MUSSER, New Orleans, in the Chair

FEBRUARY 19—AFTERNOON

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

Osteopathy and Licensure

DR. FREDERICK ETHERINGTON, Kingston, Ont.: This article appeared in full in THE JOURNAL, April 27, page 1549.

DISCUSSION

DR. WILLIAM D. CUTTER, Chicago: There are two important factors which cannot always be determined from a perusal of the written announcements of such educational institutions, which are oftentimes submitted to legislative committees in support of claims as to the character of the training that is conducted. The first of these criteria is the character and the educational fitness of the students to undertake the work. The question of the training of students must be looked into most carefully, credentials must be scrutinized, their source must be known, their accuracy must be guaranteed, and their terms must be carefully evaluated by one who has had long experience in dealing with documents of this sort. And unless one can determine in the first instance that the students in any school have been adequately prepared to enter on that course of instruction, it is unsafe to assume that anything is accomplished by the training even though on paper it may appear that the subjects covered and the time devoted to them are quite equal to those in other institutions. The second point to emphasize is the qualifications of the faculty. The mere fact that a man is in the catalogue as a professor of anatomy is no guaranty that he knows anything about anatomy. The same thing would be true, of course, in other lines. Consequently, one cannot assume, from simply reading in a catalogue, that certain courses are given or that the character of those courses is the same as would be required in recognized institutions in the same line of teaching.

CHARLES HAZARD, D.O., New York: I am a member of the State Board of Medical Examiners of the State of New York, and I am an osteopathic physician. Dr. Etherington said that there should be a common standard, and there should. If it had existed, there would be fewer independent boards in this country than there are today.

P. R. RUSSELL, D.O., Fort Worth, Texas: I do not think this is a fair report. I do not desire to bother this organization with a long discussion of this report, which I have spent nights studying, but in fairness to the sixteen or eighteen osteopathic members of this federation I have prepared a brief on my observations of Dr. Etherington's report, and I should like to request the privilege of this organization to file the same with the secretary; that is, my discussion of that report.

DR. FRANK M. FULLER, Keokuk, Iowa: If practitioners of regular medicine can find their brothers of the osteopathic faith gradually seeing the light and coming to realize that they are basing their practice on an unstable theory, and if they will of themselves, with possibly some stimulation from the outside, raise the standards of their medical schools and of their personnel, the theory of osteopathy will gradually begin to disappear and the adherents of that cult may be found gradually recognizing that the treatment of disease and the responsibility for patients is based on a broad scientific and inclusive practice of medicine.

DR. CHARLES E. HUMISTON, Chicago: Let me ask of the advocates of osteopathy Do you wish the sort of investigation that is now being conducted by the Council on Medical Education and Hospitals? Will you welcome such an investigation that will not be hurried but will be complete to your satisfaction?

DR. WILLIAM C. WOODWARD, Chicago: One thing alone in the history of osteopathy is sufficient to condemn it in the eyes of all intelligent, fair thinking men, and that is the utter unwillingness of the osteopaths to produce any evidence through animal experimentation of the truth of their theories. If there is any formal diagnosis and treatment that is susceptible of demonstration on animals, it is certainly that form which is advocated by the osteopathic school. And yet not only has no evidence of any experimentation by the osteopaths themselves been offered, but never have they invited a fair and impartial investigation of the truth of the dogma to which many of them have professed still to adhere by any scientific body appointed by any state legislature. Their progress in the legislatures of the states has been altogether political and in no sense or measure scientific. So far as this inspection is concerned, it is quite possible to find things within a very few minutes that are sufficient to condemn the subject matter of the investigation. I imagine that this is what happened in the case of these schools. Osteopathy in its entire career has turned out practically no scientific literature of its own but depends on the books that are turned out by scientific medical men. One of the stronger opponents of the enactment of basic science laws has been the osteopaths for the reason that they recognized, I believe, the inadequacy of their men in the basic sciences. Their fears with respect to those laws are demonstrated by the fact that over a period of years, and over the experience of quite a group of nonmedical, unbiased basic science boards, 36 per cent of the applicants from osteopathic schools failed utterly as against 10 per cent of the medical men and medical students.

DR. E. S. RYERSON, Toronto: Dr. Etherington merely picked out three or four paragraphs in the report. It would take over three or four hours to read all the details given in the report by Dr. Etherington and myself. We did take down a fair amount of detail as to conditions in lectures, laboratories, clinics, and so on. It is hardly fair to judge what Dr. Etherington has presented in this very limited time as the report. One of the speakers said he had read the report. I would like to know where he received it, because it has not as yet been published. It is still in the hands of the body for which it was made and has not been disposed of or made public in any way.

DR. FREDERICK ETHERINGTON, Kingston, Ont.: There is nothing that I care to add except that the paper I prepared this afternoon was not supposed to be even a synopsis of the report. We have reams of material which we got by direct observation. They said we stayed four hours in Kirksville. We were there from 1 o'clock in the morning until 6 in the afternoon. How many hours is it going to take to size up a hospital with fifteen patients? I have been in touch with hospitals all my life, here and abroad. Gross pathology doesn't exist in these schools. They don't teach it, as far as I

could ascertain. They have no museums; they don't do postmortems. In Des Moines they laid claim to only one postmortem a year, and that was done in an undertaker's establishment. So my feeling is that we spent too long in the inspection. We have got a certain number of facts, not opinions, and I challenge any one to controvert those facts. It isn't a matter of time. We have offered to osteopaths in Ontario precisely the same rights and privileges that the homeopaths have. Our friend is misinformed. There has been a change in government, and they supplanted a medical man by an osteopath on the board of regents. But there hasn't been any change in the law. You know that the osteopath is not practicing osteopathy; he is practicing medicine, and he wants to practice medicine. And he knows in his heart that this backbone theory of disease doesn't hold water. The homeopaths conform to our educational requirements. They take all the examinations as laid down by our statutes. We give them a special examination in homeopathy. We will do the same for you. Get the broad general training and we will give you a special examination. Is that fair?

DR. DANIEL J. GLOMSET, Des Moines, Iowa: I am from Des Moines. Everything he said about our school is unfortunately true. I visited the hospital a number of times.

Trends in Graduate Teaching

DR. CHARLES GORDON HEYD, New York: This article was published in full in THE JOURNAL, March 30, page 1061.

Postgraduate Work by the Iowa State Medical Society

DR. DANIEL J. GLOMSET, Des Moines, Iowa: Iowa has felt the need for postgraduate instruction for some time. Thomas McManus of Waterloo in 1929 in his presidential address before the Iowa State Medical Society said: "In this state there are approximately 3,260 physicians practicing medicine. Of this number about 1,000 were graduated during the past ten years. That leaves a balance of 2,260 who have been ten years or more out of medical school. It is conservative to assume that 70 per cent of medical practice in Iowa is being done by physicians who were graduated ten or more years ago. Medicine, in a single decade, has made decided progress, and it is just as important for the public welfare that physicians who have been a number of years in practice should enjoy the advantages of modern medicine as it is for the recent graduate to have had the last word in scientific attainment."

Dr. McManus made arrangements with the University of Iowa faculty to conduct two trial postgraduate courses. One course was given by the department of obstetrics, and one by the department of pediatrics. Each course consisted of twenty teaching hours. They were given weekly on two consecutive days in Waterloo and in Mason City, one following the other. The price of this instruction was $10 for each course. The teaching was received enthusiastically. The next year the council of the state society appointed a committee of three physicians to direct the activities of the newly established speakers' bureau. The committee met and agreed on the following objectives in the program of educating the state of Iowa medically: (1) to increase the efficiency of the practitioner in Iowa; (2) to promote the solidarity of the profession; (3) to develop medical leadership in each community; (4) to educate the public in problems of health. To accomplish these objectives, the following procedure was adopted: All work to be carried out through local medical units (a) by members of the faculty of the school of medicine of the state university, (b) by members of the state society especially qualified for certain tasks, (c) by occasional distinguished outside talent.

This work, the committee was told, must be self supporting. Consequently the fees from the postgraduate courses had to be sufficient to pay the expenses of the bureau. As the enrolment for this work increased, fees have been cut in proportion. The expenses of the speakers' bureau for the five years of its existence have been $14,148.09, and the receipts $17,526.52. After this program had been in effect two years, the state society decided that the bureau had proved the worth of its activities and accordingly voted it an allowance from the budget, which allowance has not been used up to the present time.

The speakers have all contributed without compensation. The bureau has paid them only their expenses, and in some instances even these have been refused by the men. In spite of the hardships connected with going from place to place, the teachers and the pupils again and again have expressed their enthusiastic approval. The work of the bureau covers five fields: (1) postgraduate courses, (2) scientific programs for medical groups, (3) clinics, (4) talks to lay audiences, and (5) radio talks. During the four years in which the bureau has been in existence there has been an enrolment in the postgraduate courses of more than 1,675 physicians, which is more than two thirds of the total membership of the state medical society. The bureau started out by offering only courses given by faculty members of the college of medicine of the state university. After two such courses had been given, the demand became so great that the university could not arrange enough courses without demanding too much of the time of the faculty members of the medical school. The bureau therefore organized other types of postgraduate courses in addition; namely, (1) those in which the lectures are given by prominent medical men from outside the state, and (2) those in which the lectures are given by outstanding private practitioners within the state. Many of the courses that have been given represent a mixture of two or three of these types of courses. Every department in the university except dermatology has taken part in the course. The men on the faculty have endeared themselves to the profession because of their faithful work for their fellow practitioners. Because these men are doctors first, last and always, they are willing to take on the extra amount of work required for this teaching. It is to be hoped that the friendships they have made and the knowledge they have acquired by first hand observation of the problems of the practicing physician will aid them in their teaching and in some way compensate them for what they have so willingly given.

Because of decreased appropriations, the medical faculty is unable to provide the staff for more than two courses in the fall. Outstanding private practitioners within the state and prominent men from outside Iowa have been asked to do the work for the other courses. With few exceptions, the arrangements for these courses have been the same as for the university courses, and the enrolment has been 515. Teaching by means of clinics has been used to a certain extent, in cooperation with the Iowa Tuberculosis Association, and these have reached more than 1,700 men in all parts of the state. Pediatric clinics, skin clinics and clinics dealing with other phases of internal medicine have also been conducted by the bureau. In spite of the fact that this work has been carried on during a period of financial stress, physicians have flocked to these courses. It is evident that the Iowa practitioners are anxious to make themselves better prepared for the practice of medicine. There is a marked increase in interest in scientific medicine, shown by more meetings than ever before, by better attendance and by better programs; there is an enormous increase in the output of literature from the state medical library, and there is a distinct increase in fraternal spirit because of the constant intermingling in meetings and postgraduate courses.

DISCUSSION ON PAPERS OF DRS. HEYD AND GLOMSET

GEORGE B. ZEHMER, M.A., University, Va.: I accept in the main Dr. Heyd's conclusions that there are three distinct phases of the problem of graduate medical education: namely, (1) research, (2) the training of specialists and (3) "the continuous and periodic reeducation of the general practitioner." I would enlarge on the third type of graduate instruction indicated by adding that the general practitioner needs to be further educated as well as reeducated. The term most generally employed in discussions of graduate medical education is "postgraduate education," but it is obvious that this term is sometimes used to refer to only one of the three, at other times to two, and at still others to all three types of instruction under consideration. It will simplify the problem if terms that clearly distinguish between these three phases of graduate education are adopted and generally used in medical literature. It is dangerous to say which of these three types of graduate study is most important. However, the needs for research and for the education of specialists has been recognized for years. But the recognition of the problem of the continuing education of

the general practitioner is more recent, the undertaking is more extensive in scope, and resources in teaching facilities are and will have to remain more scattered. In practically every respect the problem is more difficult. Since my interests are distinctly in this phase of graduate education, I will devote the rest of my discussion to it. Dr. Heyd said that the defect in medical practice today is the lag between scientific knowledge and practical application. He called attention to the rapid advancement in scientific knowledge so that within a ten year period a physician out of touch with sources of new knowledge may be incapable of practicing modern medicine. He included, too, most of the agencies that should aid in this educational program: (1) county and city medical societies, (2) traveling clinics, (3) two and three day clinics in the larger centers, (4) hospitals, (5) medical publications and (6) medical schools. I disagree, for sake of argument at least, with his conclusion that the systematic approach to overcoming this medical gap will be largely the obligation of universities conducting schools in graduate medical education. I think the principal responsibility rests on the local, state, sectional and even national medical societies and the hospitals. The universities and the medical schools should assume responsibility and a certain leadership and should cooperate with the other agencies working toward the desired goal, but the driving force must come from the medical societies, that is, from the physicians, and the hospitals. The hospitals, owing to the rather uniform manner in which they are distributed through the country, are the strategic focal points in which most responsibility in offering instruction can be entered. A rather ideal approach to the problem of cooperation is found in Virginia. The state medical society, with the cooperation of the two state medical schools, sponsors a state-wide program of graduate education. The extension division of the University of Virginia is the executive agency of the society. Instruction is offered in any community only on approval of and in cooperation with the local medical society. But Virginia yet has much to learn about using local hospitals and local instructors and obtaining clinical materials for instructional purposes. Hospitals should take cognizance of the possibilities of the staff meeting as an agency for the continuing education or reeducation of the physicians in the vicinity of the hospital. The standards affecting hospitals set by the American College of Surgeons seem to me to strengthen this institution as an educational agency. They require that medical staffs be organized, that complete records of cases be kept, that regular staff meetings be held and that staff members review and analyze their clinical experience. Hospitals should see to it that local physicians have the opportunity to utilize to the fullest the educational features of the staff conferences. As a layman I was interested in Dr. Heyd's suggestion that somewhere and in some fashion the public must be considered and consulted. Machinery for communication in some intelligent manner must be established and kept smoothly functioning.

DR. A. S. BROG, Boston: In September 1933 the state society decided to offer to all the eighteen districts of the state a chance to obtain the type of postgraduate instruction which they appeared to want. These eighteen districts participated in this program the first year, which was completed last June. The registration fee was $5. But the group in charge of this movement had one advantage over the Iowa group. The society gave it an appropriation of a thousand dollars to start with. The instruction last year was conducted in twenty-four centers, and there were more than a thousand physicians enrolled for the courses. That is remarkable in view of the number of other things that are going on in our community. Recently it was reported to us that there are more than fifty organizations in the vicinity of Boston holding medical meetings of a regular character during the year. In fact, the situation has got so bad in Boston that I think I am quoting Dr. Christian correctly when I say the one thing that cannot be promised an out-of-state speaker in Boston is a large audience. It may be enthusiastic but it won't be very large, because there are a half dozen other meetings going on at the same time. The organization of these outside districts has been spectacular in the way in which the people have responded. The practice has been to try to anticipate what the men were interested in, and in each case we have tried to have a liaison officer within the district. Sometimes this liaison officer was the secretary. We sent out cards and tried to get the men to choose from the courses that were offered, but just a few weeks ago, before the meeting of the council of the Massachusetts Medical Society, there was a meeting of the presidents and secretaries of the district societies in which it was indicated that probably in the future these programs would have to be set by the districts themselves, acting through their officers rather than by the personnel of the district. I wish to mention the surprise of some of us in regard to the subjects that have been chosen: for example, a curious avoidance of any instruction on venereal diseases, and also, in spite of the propaganda that we have had, on psychiatry. The institutions that cooperate with us in this extension work are the state department of public health and the teaching faculties of Harvard University, Boston University and Tufts College Medical School. Some one said a few minutes ago that there ought to be some way to evaluate instructors, and this is what is happening in our case there. Some of these men are very enthusiastically received, and occasionally we receive requests that a man be not returned to that community.

DR. DANIEL J. GLOMSET, Des Moines, Iowa: The thing that impressed itself on the committee is that some form of postgraduate instruction should become the rule for every practitioner. One thing that we have tried in Iowa, which possibly has not been tried in other places, is for the state society to keep the physician from going to sleep, as it were. We have employed more than 1,200 men. We do all of our lay education. The state society takes the position that it is the function of the doctors, as citizens, to educate the public in medical matters. We have used physicians to give lay talks, and in some of our higher institutions of learning we have actually had courses in health. We select doctors from all over the state to give these talks. In that way we have succeeded in keeping a large number of our youngsters up and coming.

Are Interns Practicing Medicine?

DR. HAROLD RYPINS, Albany, N. Y.: Since an intern is expected to have the usual training and knowledge of the practicing physician and is engaged, more or less under supervision, in doing those things which ordinarily are done only by duly licensed physicians, the medical or common sense answer must necessarily be "Yes, the intern does practice medicine." From the point of view of the various medical practice acts, however, the answer is an equally clear-cut "No." Legally speaking, the intern does not practice medicine. With the exception of the state of Indiana, where the rules of the board now require all interns to be duly licensed to practice medicine, I believe that all of the state laws governing the practice of medicine specifically exempt from the requirement of medical licensure interns or medical residents. There are four ways in which the status of the intern is classified. If the medical profession will arrive at a clear determination as to which of these states is the most desirable, the various state laws can be amended to give the necessary legal sanction to the medical profession's views. These four possibilities are as follows: 1. The intern may be exempted from the requirements of licensure. At present this is the case in thirty-one states. 2. A medical license may be required as a condition precedent to internship. So far as I know, this is the case only in Indiana. 3. The internship may be required as a condition precedent to licensure. This is the present law in sixteen states as well as in the District of Columbia and Alaska. 4. Finally, the internship may be a requirement for the medical degree. This is now the case in fifteen medical schools in this country and three in Canada. With the possible exception of Minnesota, where the degree of Bachelor of Medicine, granted after the completion of four years of professional work, admits the holder to the Minnesota state licensing examination, although the final degree of Doctor of Medicine is not granted until the completion of a year's internship, this means that for practical purposes graduates of these eighteen schools must have the internship as a condition precedent to licensure, whether or not such internship is a prerequisite in the state in which the candidate applies for licensure.

Were there any very marked advantages among these four plans, it is probable that by this time overwhelming evidence would have led to a more general adoption of one system. In

the absence of such evidence, it is reasonable to conclude that one system appears to work about as well as another. Nevertheless there are certain theoretical advantages and disadvantages. In the first place, there is so great a unanimity as to the desirability of an internship in preparation for the practice of medicine that well over 95 per cent of all graduates now voluntarily undertake such training. It is evident that laws can accomplish relatively little in increasing the number of students taking internships. The disadvantages of having the internship as a state requirement for licensure have been apparent in many states in which this is the law. The state is not as competent as the medical school to regulate the details of professional training and the inelasticity of state laws and regulations constitutes a serious hindrance to effective administration.

The Indiana plan of requiring an intern to have a medical license is not practical, as there would be a considerable delay after the student's receiving his medical degree before he could obtain his license and begin his internship. In addition, the large number of students who plan to receive their licenses through passing the examination of the National Board of Medical Examiners would be barred from internship, since the completion of the internship is necessary for obtaining the diploma of the National Board.

Little can be done to increase the number of available internships, which are not quite sufficient in number. Emphasis should be placed on better rather than more internships; that is, internships which are properly supervised for the systematic education of the interns. This can be done adequately only through incorporating the internship in the medical course necessary for the M.D. degree.

The five medical schools of New York City have joined with the Academy of Medicine to make a most extensive survey of the teaching possibilities of internships in New York City. The results of this survey should be a most important contribution to the problem and its conclusions a valuable guide in the matter.

My conclusion is that the proper law is one which states that the intern is not practicing medicine within the meaning of the statute. Ultimately either the medical schools themselves or the state boards will almost certainly require the internship as part of the fundamental training of the medical student, a prerequisite for both the medical degree and admission to the state licensing examination.

DISCUSSION

DR. J. W. BOWERS, Fort Wayne, Ind.: The practice of medicine is a state right; therefore a uniformity of law would be hard to attain because the problems in one locality might be diametrically opposite to the problems of another. The statute of Indiana does have a student's exemption clause but it was written long before the days of internships: "This act shall not be construed to prevent medical students from practicing medicine and surgery under the immediate and direct supervision of a licensed physician for a limited period. In no event shall the said student open an office or offer to engage in the practice of medicine, surgery or obstetrics." In recent years there were graduates from schools serving internships in Indiana that were not eligible for licensure and could never qualify for practice in the state. Therefore, in 1933 the board adopted a resolution that any physician who desires to serve as an intern in a hospital in Indiana shall be in possession of an Indiana license or shall present documentary evidence of having successfully passed the examinations of this board for a license, or the examination of a board of another state, which would entitle him to a license in Indiana through reciprocity. This does not pertain to a student from a college that requires the fifth year because he is not a physician but still a student. Beyond doubt, the intern year is the crowning feature in one's collegiate work. The hospital that gives the proper intern training is one that has a functioning staff on which the intern receives instruction, is allowed to view and assist in various capacities, and has rotating services. This intern is not practicing medicine within the meaning of the law but is still a student. Hospitals that give an improper training are hospitals in which the instruction is secondary. The interns receive maintenance and sometimes a small sum per month. They are called on to give anesthetics, and the customary fee is collected and retained by the corporation. Another practice is that of emergency cases in which the intern assumes complete charge, gives the service and patients return for subsequent treatment and dressings, but the cases are likewise paid for by the patient and the sum collected is retained in the institution's treasury. Perchance one of these cases might prove fatal. Who is going to sign the death certificate? Most certainly neither the intern nor the hospital. On their own initiative interns, nurses and employees in some hospitals do prescribe narcotics. When and by whom was this governmental authority given? The practice of medicine is a privilege and no corporation can obtain this privilege. Therefore these hospitals are aiding and abetting a fraud by having their interns and nurses violate the law by doing that which they have no right. In discussing this problem, it seems that the solution lies in a better regulation and supervision of the hospitals available for internship. These violations should be corrected as one of the requisites for a hospital to be recognized as accredited for the proper training of interns.

DR. T. J. CROWE, Dallas, Texas: In Texas, no exemption in the law is made for the intern. Any person who treats or offers to treat a disease of any order or any deformity, and charges for it, is practicing medicine within the meaning of the present medical practice act. However, no notice is taken of the intern who is practicing in a properly supervised internship. To some extent an intern should be held responsible. For that reason he could be held responsible for practicing medicine, with the present state of the law, which provides that any person who receives money or other compensation, either directly or indirectly, for treating a human being for a disease or disorder is practicing medicine. I think that is a protection. I believe it is figuratively meant that every intern is practicing medicine when he completes his course and goes into a hospital. That is what he is there for.

DR. HAROLD RYPINS, Albany, N. Y.: I envy the gentlemen who live in western and southern states, where apparently the law is flexible and can be enforced or not, according to the whim of the administrative officer. In New York we have to follow the law. But in general I think that as long as we say a license is not required we do not require it. However, if our law said that a license would be required, every one who wanted to be an intern would have to have a license.

Uniform Standards of Licensure

DR. CHARLES B. PINKHAM, Sacramento, Calif.: A comparative study of the mechanics of licensure, as administered by boards created under the many medical practice acts of the United States, discloses such a lack of uniformity that one wonders what may be the ultimate solution. Its complexity is rapidly growing because of the allied problems of present-day medical practice. The number of medical schools in the United States has been reduced in the past decade, the requirements for admission have been advanced, enrolment has been limited and an intern year added, yet still the output of the American medical colleges is steadily increasing. Faced with overcrowded medical ranks and the economic distress, the medical graduate today is confronted with a situation that threatens his career as a practitioner of the healing art. In many states, after he has gained his right to practice in the form of a medical license the medical licentiate must compete with those who possess diplomas bearing the name of nondescript schools.

The majority of boards authorized under the laws of various states to license the products of these nonmedical groups are none too exacting in the verification of the asserted credentials presented by applicants for a license. Thus is encouraged the forging of credentials, the purchase of diplomas, the activities of diploma mills and the too frequent scandals that besmirch the fair name of the victim state because of the misdeeds of a few rascals. A uniform standard of licensure is the crying need.

Basic science legislation has been proclaimed as a solution to elevate the standard of the nonmedical group. A questionnaire distributed to the secretaries of all medical licensing bodies in the United States and returned completed by all except Delaware disclosed that only ten states reported a basic science law in operation. Only four states not having a basic science law reported that they favored such an enact-

ment. A basic science law will not uphold the ideals for which it was created unless each member of the board of examiners created under it is fully qualified by completion of the entire resident course in an accredited university.

The varying personnel composing medical examining boards may be of interest. California has a (1) medical board composed of ten graduates of medical schools, (2) an osteopathic board composed of five graduates of osteopathic schools, and (3) a chiropractic board. Eleven state boards have at least one osteopathic board member. Mississippi and West Virginia each have a dentist member. The District of Columbia board is composed of one M.D. and four laymen; Illinois reports a chiropractor member for examination only, while the Indiana board has a chiropractor member. Kentucky has a pharmacist as a board member.

A medical graduate passes on the credentials of an applicant for a medical license in the majority of states. A lay secretary validates credentials in Illinois, Nebraska, New York and Washington, while in Massachusetts credentials are passed on by the chief clerk.

Colorado, Georgia, Illinois, Kentucky, Maryland, Massachusetts, Pennsylvania, Utah and Virginia, reported that they do not require the application to be accompanied with a medical diploma. Some of these states will accept the certificate of the dean of the medical school in lieu of a diploma. An applicant will be admitted to examination in Kentucky without a diploma if graduation is shown within one month after examination.

An internship requirement, either by law or board rule, for admittance to examination was reported by Alaska, the District of Columbia, Illinois, Iowa, North Dakota, Oregon, Pennsylvania, South Dakota and Wyoming. Washington reported that it admits to examination provided not more than six months is yet to be served to complete the applicant's internship. The medical practice acts of sixteen states require completion of an internship before application for medical examination is acceptable. Fifteen medical colleges require completion of an internship before a medical diploma will be granted.

The urgent need for greater uniformity in standards of medical licensure is reflected in the methods used by various medical examining boards in evaluating credentials from foreign medical schools. California has experienced great difficulties in verification of credentials from foreign countries. The teaching system followed by foreign medical schools, their method of keeping record of attendance of the individual student, the basis on which is computed each scholastic term or year, their inability or refusal to furnish a tabulated record of the medical studies completed by a student, his attendance and grades, and, worst of all, that confusing European habit (universally prevalent in Germany) of attending four, five or six medical schools, all combine to form a perplexing problem for a state medical examining board. Verification of medical credentials through the proper officer of German medical schools is practically impossible because of the political conditions. Russia for years has been in such a state of political unrest that verification of medical credentials from that country has been impossible. Puzzling as to authenticity are the average alleged official Russian documents filed by the graduate of a Russian medical college as his credentials. Invariably written by hand or typed on a poor quality of paper, these documents are far from acceptable evidence of medical qualifications. The resolution passed by the Federation of State Medical Boards requiring all graduates of foreign medical schools to serve at least a one year internship in an approved United States hospital or to complete the senior year in an approved United States medical school appears from our questionnaire to be enforced by only one medical examining board. The influx of foreign physicians, now acute, will be a more perplexing problem when the 1,500 Americans reported last year as having gone to foreign countries to study medicine return to our shores in search of a medical license. Faced by the uncertainties of credentials from foreign medical schools, Alaska, Arizona, Georgia, Kentucky, Louisiana, Mississippi and North Carolina reported that foreign credentials were not accepted and that foreign graduates were not admitted to examination. Some state medical boards permit a foreign applicant special privileges. New Mexico permits the use of an interpreter during the examination. He is selected by the board, is seated with the applicant in the same room with other applicants and is permitted to refer to books. Because this interpreter may be a graduate of a medical school it is conceivable that, fortified by reference books which he is permitted to use during examinations, he can be of great help to an applicant for a medical license. Texas also permits the applicant to write in a foreign language and he is permitted to use an interpreter. This interpreter is usually a board member, a graduate of a medical college, is seated with the applicant in the same room as other examinees, and may refer to books. Fourteen state boards reported that citizenship is not a requirement for admittance to examination for a medical license; however, twelve require that first papers be held. Two states require "declaration of intent" to become a citizen before the foreign graduate is admitted to examination. Maryland permits distinguished foreign practitioners to be licensed by endorsement of their foreign credentials. New York may also grant to graduates of foreign medical schools a medical license by endorsement whenever the applicant has been in practice in a foreign country for ten or more years. In THE JOURNAL, Sept. 29, 1934, page 1015, was a list of 105 graduates of foreign schools, applicants for a New York medical license. Thirty-nine passed and nineteen failed the written examination, while forty-seven of this group were licensed on endorsement of their foreign credentials.

The mechanics of written examination procedure followed by medical examining boards is widely divergent. Illinois appears to be the "Santa Claus" for all applicants because it reported that no application fee is required until the "applicant has been notified that he has been successful." A photograph of the applicant attached to his application is recorded as the universally adopted method of identification. Had the Georgia board "checked in" applicants by photographs, the asserted impersonation of Philip Dyment by Lucian Wright, reported to have written the examination for Dyment, would have been impossible. Three state boards report a "check in" by number only. Eleven report that they require that the photograph of the applicant shall be in sight on his desk during his entire examination. This is collected by tellers after the examination has been completed. The Department of Licenses of Washington made no mention that a photograph of the applicant was required, either attached to the application or otherwise.

North Carolina reports that it is discretionary with the board as to the kind of examination given. Twelve states reported that they offer more questions than the applicant is required to answer, thus giving him opportunity for selection. California offers twelve questions, the applicant being required to answer any ten. Thirty-one states reported that they offer only a written examination. Four states reported that bedside examination is required. Some state boards reported that the questions of examination are prepared by board members a month prior to the date of the examination, while New York prepares the questions one year in advance of examination. In such instances the custodian of examination questions bears a grave responsibility. The custodianship of these valuable records varies in the several states. Many examining boards place the obligation of protecting these questions from being known in advance on the secretary of the board.

A passing grade of 75 per cent is established by practically all medical examining boards, although Kentucky and New Mexico report 70 per cent as their passing grade, while Georgia, North Carolina, Rhode Island and West Virginia require 80 per cent. The right to a review of the papers of those applicants who fall below the established passing grade is granted under certain conditions by twenty-three state boards. Twenty-two boards voiced disapproval of an oral examination requirement for reciprocity applicants; eleven were favorable to such a requirement. An interesting sidelight to our survey developed when all were unanimous in voting no to the query as to whether medical examining boards should examine and license in any of the specialties in medicine. Because of the wide variation in the state medical practice acts, the factors involved in their administration and the ever changing personnel of the average board of medical examiners, the Federation of State Medical Boards can point with pride to the present standards of medical licensure.

This digest of the survey indicates the need to press on. Consideration of the problems of other boards will broaden our administrative point of view.

DISCUSSION

Dr. J. N. Baker, Montgomery, Ala.: Any one who attempts to compare the laws in the various states is impressed with their polyglot, incongruous nature. I believe those things will be perfected slowly and gradually, as the educational forces get over to the public and to the legislatures. I consider the work of the National Board of Medical Examiners a great driving factor in this educational work.

Dr. J. E. McIntyre, Lansing, Mich.: I have found no class A American medical schools that will accept a foreign graduate in the last year of medicine, so Michigan is not bothered much with foreign graduates. We have had the same trouble that Dr. Pinkham has quoted in trying to evaluate foreign credits. It is almost an impossibility. There have been many spurious credits or credentials offered to us in the past. Michigan admits to its board only graduates of class A American schools who have served one year of rotating internship in an approved American hospital. Therefore, it makes the problem easier in Michigan.

Dr. John Z. Brown, Salt Lake City: I should like to have Dr. Pinkham clarify his statement regarding basic science laws. In Utah some men are considering that problem. In Minnesota and other states with which we reciprocate they have it, but we have not adopted it and it would require legislative action to do it.

Dr. T. J. Crowe, Dallas, Texas: I think there should be more discussion from the floor. If our work is worth anything at all, if it means anything either to the medical profession or to the public, why not make it valuable one way or the other, if we cannot both ways? I find that a number of the states go off independently and adopt a basic science law. A number of the basic science states have required that any applicant for reciprocity must take the basic science examination before reciprocity for that state can be granted. It is one of the tragedies of medical judgment that any state should adopt a basic science law without taking notice of the reputable graduate of ten years ago who had all the basic science subjects and who to get that reciprocal license must go back and review work that he did years ago. Arkansas told me that one of our men who went there could not qualify. This graduate had the basic sciences three different times, in his academic two years of premedical education, in his medical college, and we gave them to him in our examination. How many times should he be expected to take the basic science examination? Why medical men will not look beyond the boundaries of their own state I cannot understand. Many boards are in disrepute because one state has one law and the neighboring state has another. Texas has one license certificate, and every man who practices medicine, whether he is a drugless man or what-not, conforms to the same law and is examined in the fundamentals of medicine and the basic sciences.

Dr. Charles Pinkham, Sacramento, Calif.: Answering the question of the member of the Utah board, I did not mean to convey the impression that there was to be a national basic science law. What I tried to make clear was what Dr. Crowe has been talking about, that the well educated individual, having obtained his license in one state, should not be required in going to a sister state to pass a basic science examination. California recently had a similar experience with the state of Washington. A graduate of the University of California, a class A institution, with an A.B degree and a California medical practice certificate, after a written examination could not get into the state of Washington until he had passed the basic science examination. That is absurd. I tried to stress in my paper that, because California has the chiropractic and the osteopathic boards created by an initiative measure, that is, by a vote of the people any legislative enactment of a basic science law by the state of California would be absolutely valueless. However, if such a basic science law is passed by initiative, it would require all who present themselves to either of those two boards to have the basic science certificate first. And that is the only method whereby basic science can be available in the state of California.

MEDICAL BROADCASTS

Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Chicago daylight saving time (3:30 p. m. central standard time). The next three broadcasts will be delivered by Dr. W. W. Bauer. The titles will be as follows:

May 9. Saving Our Mothers.
May 16. Children's Eyes.
May 23. Saving Our Eyesight.

National Broadcasting Company

The American Medical Association broadcasts under the title "Your Health" on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15 Chicago daylight saving time (3 p. m. central standard time). The next three broadcasts will be as follows:

May 7. Mothers of America, W. W. Bauer, M.D.
May 14. Training Good Doctors, W. D. Cutter, M.D.
May 21. Pain, W. W. Bauer, M.D.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

State Medical Meeting in Yosemite.—The sixty-fourth annual meeting of the California Medical Association will be held at the Ahwanee Hotel, Yosemite National Park, May 13-16, under the presidency of Dr. Clarence G. Toland, Los Angeles. There will be general sessions each morning, at which the following will speak:

Dr. Edward Starr Judd, Rochester, Minn., Research in Medicine—Practical Applications
Dr. George H. Whipple, Rochester, N. Y., Anemias, Experimental and Clinical.
Dr. Thomas P. Sprunt, Baltimore, Medicinal Treatment of Hepatic and Biliary Disorders.
Dr. James S. McLester, Birmingham, Ala., President-Elect, American Medical Association, The Profession's Economic Responsibility.
Lionel Browne, San Francisco, deputy attorney general, The Right to Regulate and the Reason for Regulation of Professions.
Paul A. Dodd, Ph.D., Los Angeles, director of the association's survey of medical service, Pertinent Facts Uncovered by the State Survey of Medical Service.
Dr. Harry R. Wilson, Los Angeles, What Is the Remedy?

In addition there will be guest speakers at the section meetings as follows:

Dr. Whipple, Regeneration of Hemoglobin and Plasma Proteins as Related to the Liver.
Dr. Sprunt, Acute Disorders of the Liver.
Dr. Judd, Surgical Treatment of Lesions of the Stomach and Duodenum.
Dr. Byrl R. Kirklin, Rochester, Minn., Clinical Indications for Roentgenologic Studies of the Stomach.
Drs. Paul G. Flothow and Sylvester N. Berens, Seattle, Diagnostic and Alcohol Injection of the Sympathetic Nerves.
Dr. Ralph M. Tovell, Rochester, Minn., Modern Trends in Anesthesia.
Dr. Charles U. Moore, Portland, Ore., Incidence of Rachitic Imperfections in Children.
Dr. Henry Schmitz, Chicago, A Comparison of 800 Kv. with 200 Kv. Roentgen Ray.
Dr. LeRoy Sloan, St. Louis, Roentgenologic Differentiation Between Acute Intestinal Obstruction and Paralytic Ileus.

Dr. Frederick C. Warnshuis, San Francisco, secretary of the association and Speaker of the House of Delegates of the American Medical Association, will address the sixth annual meeting of the Woman's Auxiliary, of which Mrs. Philip Schuyler Doane, Pasadena, is president.

CONNECTICUT

Highway Named for Beaumont.—The Connecticut legislature has authorized a new highway between Lebanon and Willimantic to be named the Beaumont Memorial Highway, in honor of Dr. William Beaumont, pioneer in the study of the physiology of digestion. Dr. Beaumont was born in Lebanon, where the Beaumont Society of Connecticut erected a memorial some years ago. Dedication of the new highway will take place June 1, with ceremonies at which Gov. Wilbur L. Cross and Dr. Harvey Cushing will make addresses.

University Appointments.—Mark A. May, Ph.D., executive secretary of the Institute of Human Relations at Yale University, New Haven, since 1931, has been appointed director of the institute. President James Rowland Angell has been director. Dr. May came to Yale from Columbia University, New York, in 1927 as professor of educational psychology. Dr. Leonard Greenburg, health officer of New Haven, has been promoted to be associate clinical professor of public health, and Dr. Chris Harold Neuswanger to be assistant clinical professor of urology. Dr. Robert Tennant Jr. has been made assistant professor of pathology and Gertrude Van Wagenen, Ph.D., assistant professor of obstetrics and gynecology.

FLORIDA

Bills Passed.—The following bills have passed the senate: S. 141, proposing that whenever the word "physician" appears in any law, unaccompanied by any descriptive language denoting some particular kind of "physician," it shall mean a licentiate of the State Board of Medical Examiners or a licentiate of the "State Board of Osteopathic Medical Examiners"; S. 144, proposing to amend the medical practice act by making it the specific duty of all sheriffs, constables, their deputies, police officers, peace officers, prosecuting attorneys, and the state board of health to enforce the provisions of the medical practice act; S. 145, proposing to amend the narcotic drug act by permitting osteopaths to administer and prescribe narcotic drugs; S. 146, proposing to amend the medical practice act by requiring an applicant for a license to practice medicine to be a citizen of the United States, rather than, as the present law requires, to be a citizen of the United States or to have declared his intention to become a citizen.

Bills Introduced.—S. 148 and H. 145 propose to accord to hospitals, physicians, osteopaths, chiropractors, naturopaths and nurses, treating persons injured through the fault of others, liens on all rights of action, claims, judgments, compromises, or settlements accruing to the injured persons by reason of their injuries. S. 238 proposes to require the state board of health to distribute insulin free of cost to indigent residents of the state suffering from diabetes or kindred diseases that require the use of the drug. H. 91 proposes to repeal the existing naturopathic practice act and to enact a new naturopathic practice act. The bill proposes, in effect, to extend greatly the scope of a license to practice naturopathy. It purports to permit licensed naturopaths, in addition to the practice now permitted, to practice physiotherapy, herb-therapy, electrocoagulation and electrotherapy. It also removes the express provision in the existing law prohibiting naturopaths from practicing materia medica or surgery. H. 147, to amend the law requiring physicians to register annually with the state board of health and to pay a fee of $1, proposes that, after a physician has once registered with the board and paid a fee of $2, he need not reregister until such time as he changes his residence or the place in which he intends to carry on the practice of medicine. H. 149 proposes to prohibit all persons, other than licensed physicians and licensed osteopaths, from "prescribing drugs, doing surgery, x-ray, diathermy, electrocoagulation, radiation, or autohemic therapy in the diagnosing, treatment, operation or prescribing for any human disease, pain, injury, deformity or physical condition." H. 494 proposes to require that all persons in the state over the age of 4 be vaccinated and immunized against smallpox.

GEORGIA

Society News.—At a meeting of the Fifth District Medical Society in Atlanta, March 29, speakers included Drs. Stewart R. Roberts on "Treatment of Congestive Heart Failure"; William M. Scruggs, Charlotte, N. C., "Management of the Toxic Goiter"; Thomas C. Davison, "Surgical Treatment of Angina Pectoris," and Louis G. Herrmann, Cincinnati, "The Passive Vascular Exercise (Pavaex) Method of Treating Obliterative Arterial Diseases of the Extremities."——The Georgia Academy of Science was addressed at its annual meeting, March 22-23, among others, by Clinton C. Howard, D.D.S., Atlanta, on "Two Sets of Identical Twins Presenting Identical Anomalies"; Drs. George L. Kelly, Augusta, "The Direct Observation of Ovulation in the Rabbit"; Homer R. Blincoe and John H. Venable, Emory University, "Persistence in Man of An Aortic Arch Resembling That Which Persists in Adult Reptiles," and Joseph H. Kite, Decatur, "Nonoperative Versus Operative Treatment of Tuberculosis of the Spine in Children."——At a meeting of the Fulton County Medical Society, March 7, Dr. Frank Lee Bivings presented a paper on "The Feet in Infancy and Childhood."

ILLINOIS

Bill Introduced.—H. 863 proposes to limit the sale of appliances, articles, drugs or medicinal preparations intended or having special utility for the prevention of conception or venereal disease to persons licensed by the department of registration and education to sell them.

Personal.—Dr. George A. Zeller has retired as superintendent of the Peoria State Hospital, a position he had held consecutively since 1921; when the institution was being organized in 1898, Dr. Zeller was named superintendent but did not assume active charge until 1902, continuing until 1914, when he became alienist for the board of administration.——Dr. John R. Neal, Springfield, a former president of the Illinois State Medical Society, has been named medical director of the Alliance Life Insurance Company.——Dr. Albert E. Fritze, Chester, observed his fiftieth anniversary in the practice of medicine, March 15.

Chicago

Dr. Vallery-Radot Lectures.—Dr. Pasteur Vallery-Radot, associate professor of medicine, University of Paris Faculty of Medicine, and physician to the Bichat Hospital, presented a lecture, April 28, at the Casino on "La vie intime de Pasteur." The lecture was under the auspices of the executive board of the American Library in honor of Pasteur.

Portrait of Dr. Parker.—An enlarged photograph of the late Dr. Charles A. Parker was presented to the Chicago Orthopedic Society by Dr. Daniel H. Levinthal at a meeting, April 12. The portrait was donated by the Huey Company to Dr. Levinthal for the society. It will be hung in the children's orthopedic ward at Cook County Hospital, where Dr. Parker worked for many years. Dr. Parker died July 16, 1934.

IOWA

State Medical Meeting at Davenport.—The eighty-fourth annual session of the Iowa State Medical Society will be held in Davenport, May 8-10, under the presidency of Dr. Gordon F. Harkness, Davenport, and with headquarters in the Masonic Temple. Out of state speakers will include:

Dr. Loyal Davis, Chicago, Treatment of Craniocerebral Injuries.
Dr. William S. Middleton, Madison, Wis., Postoperative Pulmonary Complications: Their Prevention and Management.
Dr. Harry S. Gradle, Chicago, Management of Eye Injuries by the General Practitioner.
Dr. Charles Anderson Aldrich, Winnetka, Ill., Treatment of Acute Nephritis in Children.
Dr. James S. McLester, Birmingham, President-Elect, American Medical Association, Deficiency Disease as a Clinical Problem.

A symposium on carcinoma of the colon will be presented Wednesday morning; Wednesday and Thursday afternoons will be given over to sectional conferences for discussion of the specialties. In addition, papers will be presented during the morning sessions by Iowa physicians. Entertainment will include a smoker Wednesday evening at the Blackhawk Hotel and the annual banquet Thursday evening with Dr. Frank B. Dorsey Jr., Keokuk, as toastmaster. Dr. Harkness will deliver his presidential address at the banquet and the president-elect, Dr. Thomas A. Burcham, Des Moines, will also speak. A preconvention golf tournament will be held Tuesday afternoon. The sixth annual meeting of the Woman's Auxiliary of the state society and the thirty-seventh annual session of the State Society of Iowa Medical Women will also be held at this time.

KENTUCKY

Graduate Course in Pediatrics.—A ten weeks course in pediatrics is being given at the Children's Free Hospital, Louisville, under the auspices of the American Academy of Pediatrics. The teaching staff includes Drs. Philip F. Barbour, Thomas Cook Smith, James H. Pritchett, Annie S. Veech, James W. Bruce, William W. Nicholson, Jacob J. Glaboff and Harry S. Andrews. The course began April 24 and is to continue on succeeding Wednesdays through June 26.

MARYLAND

The Thayer Lectures.—The eighth course of lectures under the William Sydney Thayer and Susan Read Thayer Lectureship in Clinical Medicine was delivered by Dr. Pasteur Vallery-Radot, associate professor of medicine at the University of Paris Faculty of Medicine, April 25 and 26, at Hurd Memorial Hall, Johns Hopkins University, Baltimore. Dr. Vallery-Radot's subjects were "The Links Between Pasteur's Discoveries (From Molecular Dissymmetry to Antirabic Vaccination)" and "From Experimental Anaphylaxis to Human Anaphylaxis." The Thayer Lectureship was founded in 1927 by friends and admirers of the late Dr. Thayer.

Johns Hopkins Hospital Appeals for Funds.—For the first time in many years, Johns Hopkins Hospital has opened a campaign for funds to carry on its charity work. The campaign was launched at a banquet at the Hotel Belvedere, April 23, at which Isaiah Bowman, Ph.D., recently chosen president-elect of Johns Hopkins University, made the principal address. Dr. Hugh H. Young, professor of urology in Johns Hopkins University School of Medicine and head of the Brady Urological Clinic at the hospital, is chairman of a committee to ask persons outside of Baltimore to contribute. The fund of $200,000 that is sought will enable the hospital to carry on its charity work for two years and to open beds now closed in the children's surgical ward and the women's clinic, it was said. About 300 persons attended the dinner.

MICHIGAN

Memorials to Former Faculty Members.—Three former members of the faculty of the University of Michigan School of Medicine were memorialized when relatives recently donated plaques to the university in their honor. The Albion Walter Hewlett Memorial Plaque will be placed in the University Hospital in honor of Dr. Hewlett, who was professor of internal medicine and director of the clinical laboratories in the medical school, 1908-1916. It is the gift of Mrs. Hewlett, now of San Francisco. Other plaques honor the memory of Dr. James G. Van Zwaluwenburg, who at the time of his death in 1922 was professor of roentgenology, and Dr. George Edward Frothingham, who at the time of his retirement was professor of materia medica, ophthalmic and aural surgery and clinical ophthalmology. These plaques were the gifts of Dr. Cornelius Van Zwaluwenburg, Riverside, Calif., brother of the late physician, and the son of the late Dr. Frothingham, Dr. George E. Frothingham, Detroit. The late Dr. Van Zwaluwenburg was a member of the faculty from 1908 to 1922, and Dr. Frothingham from 1867 to 1889.

Society News.—A joint meeting of the Wayne County Medical Society with the medical societies of Essex and Kent counties of Ontario, Canada, March 11, was addressed by Drs. George H. R. Hamilton, Chatham, on "Some Pitfalls in Diagnosis of Acute Abdominal Conditions"; Clare S. Sanborn, Windsor, "Relation of Duodenal Mucosa to the Natural Secretion of the Pancreas"; William R. Waddell, Windsor, "Ulcerated Colitis," and Charles C. White, Chatham, "Acute Suppurative Arthritis."——Dr. Richard C. Connelly, Detroit, discussed "Gastric Secretion in Health and Disease" before the Grosse Pointe Medical Club, March 6.——At a meeting of the Detroit Oto-Laryngological Society, March 20, Dr. Clifford F. Brunk read a paper on focal infection.——At a meeting of the Genesee County Medical Society in Flint, March 6, Dr. Frederick C. Kidner, Detroit, spoke on "Anatomy of the Lower Part of the Spine in Relation to Pain."——Dr. Raphael Isaacs, Ann Arbor, discussed "The Mechanisms of the Formation of the Different Kinds of Blood Cells in Health and Disease" before the Detroit branch of the Society of American Bacteriologists, March 27.——Dr. Henry A. Luce, Detroit, addressed the Jackson County Medical Society in Jackson, March 19, on "Neuropsychiatry for the General Practitioner."——Dr. Max Cutler, Chicago, discussed "Diagnosis and Treatment of Cancer of the Breast" before the Wayne County Medical Society, Detroit, March 4.——Dr. Harther L. Keim, Detroit, among others, spoke before the Bay County Medical Society, February 27, on "Skin Eruptions of the Face."

MISSOURI

State Medical Meeting at Excelsior Springs.—The seventy-eighth annual meeting of the Missouri State Medical Association will be held at Excelsior Springs, May 6-9, at the Elms Hotel. Guest speakers and their subjects will be:

Dr. John S. Coulter, Chicago, Physical Therapy in Chronic Arthritis.
Dr. Oswald S. Lowsley, New York, New Developments in Renal Surgery.
Dr. Rosco G. Leland, Chicago, Medical Care for the American People.

Dr. Cecil S. O'Brien, Iowa City, will conduct an ophthalmic diagnostic clinic at the Veterans' Administration Facility at Excelsior Springs, and Dr. William W. Bauer, Chicago, will address the Woman's Auxiliary on "Centuries of Progress in Medicine." Among the Missouri physicians who will participate are:

Dr. John R. Caulk, St. Louis, Chronic Pyelonephritis in Children.
Dr. Peter T. Bohan, Kansas City, Quinidine Sulphate: Its Actions and Uses.
Dr. Fred W. Bailey, St. Louis, Early Diagnosis in Obscure Abdominal Diseases.
Dr. Samuel H. Snider, Kansas City, Diagnosis and Nonsurgical Treatment of Bronchiectasis.
Dr. Ralph A. Kinsella, St. Louis, Treatment of Chronic Arthritis.
Dr. Frank C. Neff, Kansas City, Changing Practices in Infant Feeding.
Dr. Joseph V. S. Daubays, Excelsior Springs, Schäffer-Christian Disease.
Dr. George Wilse Robinson, Kansas City, Practical Factors in Development of Psychoses.
Dr. Titus S. Lapp, Fulton, An Institutional Outbreak of Shiga Dysentery and Its Control.
Dr. Joseph S. Summers, Jefferson City, Myasthenia Gravis.

Dr. Caius T. Ryland, Lexington, will give his presidential address and Dr. Edwin Lee Miller, Kansas City, his address as president-elect, Tuesday morning, May 7.

NEW MEXICO

Institute on Venereal Disease.—Dr. Walter Clarke of the staff of the American Social Hygiene Association conducted an institute of venereal disease at the Charles F. Lummis Hospital at the U. S. Indian School, Santa Fe, March 18-19, assisted by Dr. Robert H. Heterick, Albuquerque, medical director of District No. 3 of the Indian Medical Service. Twenty physicians and forty nurses attended.

NEW YORK

Society News.—Dr. Charles T. Porter, Boston, addressed a joint meeting of the Syracuse Academy of Medicine and the Syracuse Eye, Ear, Nose and Throat Club, March 17, on "Etiology and Treatment of Infections of the Orbit."——Dr. Harrison S. Martland, Newark, N. J., and Alexander O. Gettler, Ph.D., addressed the Onondaga Medical Society and the Onondaga County Bar Association at their annual dinner meeting in Syracuse, April 13, on "Medical Detection of Crime" and "Chemistry in the Detection of Crime," respectively.——Drs. Henry L. K. Shaw and John E. Heslin discussed medical and surgical aspects, respectively, of "Urinary Infections of Childhood" at a meeting of the Medical Society of the County of Albany, April 24.

New York City

Hospital Council Named.—Members of an advisory council to coordinate the activities of hospitals were named by Dr. Sigismund S. Goldwater, commissioner of hospitals, March 29. As reported in the New York *Times*, they include Mayor La Guardia; Controller Taylor; Dr. Goldwater; Health Commissioner John L. Rice; Charles C. Burlingham, president of the Welfare Council of New York; Solomon Lowenstein, representing Jewish philanthropic agencies; Rev. Joseph S. O'Connell, representing Catholic Charities; Dr. John A. Hartwell, director of the New York Academy of Medicine, and Dr. David J. Kaliski, representing the five county medical societies.

Annual Art Exhibit.—Two hundred and fifty-nine exhibits were displayed in the eighth annual exhibition of the New York Physicians' Art Club at the New York Academy of Medicine, March 30-April 13. Only one of the number was on a medical subject, most of the work showing vacation scenes. The exhibit included paintings, bas-reliefs, plaques, sculpture and photographs. Among the exhibitors were Drs. Howard Lilienthal, Henry H. M. Lyle, Louis C. Schroeder, Winfred Morgan Hartshorn, Theron W. Kilmer, Walter Beran Wolfe, Yolande E. H. Huber, Alfred Braun and Abraham L. Wolbarst, all of New York; Frederic J. Cotton, Boston, and Florence A. B. Brush, White Plains.

Census of Diabetic Patients.—The New York City Department of Health recently sent a letter to all physicians in the city asking them to inform the department of the number of diabetic patients under their care. The department is making an effort to place all persons with diabetes under the care of licensed physicians, as it has been found that many of them trust to nostrums, trick diets, alleged substitutes for insulin and the like, Dr. John L. Rice, health commissioner, said. Information assembled by the New York Diabetes Association indicates that there are as many as 100,000 diabetic persons in the city. It is believed that diabetes is more prevalent than tuberculosis.

NORTH CAROLINA

Bill Introduced.—S. 504 proposes to require every male applicant for a license to wed, as a condition precedent to obtaining such license, to present a certificate of a licensed physician, executed within seven days of the application, that the applicant does not have any venereal disease or tuberculosis in an infectious stage and that he has not been legally adjudged to be an idiot, imbecile or of unsound mind. Female applicants are to be required to present a physician's certificate showing the nonexistence of tuberculosis in the infectious stages and that they have not been legally adjudged to be of unsound mind.

State Medical Meeting at Pinehurst.—The eighty-second annual session of the Medical Society of the State of North Carolina will be held at Pinehurst, May 6-8, with headquarters at the Carolina and under the presidency of Dr. Paul P. McCain, Sanatorium. There will be four general sessions, at which speakers will be the following:

Dr. James R. Young, Anderson, S. C., My Experience in 2,200 Cases of Appendicitis.
Dr. Lester A. Crowell Jr., Lincolnton, Pneumothorax Treatment of Lobar Pneumonia.
Dr. Russell O. Lyday, Greensboro, Surgical Treatment in Noncollapsible Cavities.
Dr. Williamson Z. Bradford, Charlotte, Factors Influencing Maternal Mortality in North Carolina.
Dr. David R. Lyman, Wallingford, Conn., Pregnancy and Tuberculosis.
Dr. Roy B. McKnight, Charlotte, The Charlotte Medical Library.
Dr. Franklin C. Smith, Charlotte, Conservation of Vision and the General Physician.
Dr. John Roy Hege, Winston-Salem, A Proposed County-City Venereal Disease Program.
Dr. Verling K. Hart, Charlotte, Bronchoscopy in Childhood.

In addition, Dr. William Thornwall Davis, Washington, D. C., will address the section on ophthalmology and otolaryngology on "Treatment of Squint by Orthoptic Training and Surgery"; Dr. Louis H. Clerf, Philadelphia, the section on practice of medicine, "Bronchoscopy as an Aid in the Diagnosis of Pulmonary Diseases," and Dr. Jean P. Pratt, Detroit, the section on gynecology and obstetrics, on "Application of Endocrinology to Gynecology." There will be a golf tournament Tuesday afternoon, and the president's reception and ball will be held Tuesday evening. The Woman's Auxiliary will hold its annual meeting at the same time and the North Carolina Public Health Association will meet Monday, May 6.

OHIO

Graduate Assembly at Youngstown.—The Mahoning County Medical Society presented its eighth annual graduate assembly, April 25, at Youngstown. Lecturers were from Rochester, Minn., as follows:

Dr. Walter C. Alvarez, Treatment of Gastro-Intestinal Neuroses; Diagnosis of Gastro-Intestinal Disease Purely from a Good History.
Dr. Claude F. Dixon, Rectal Cancer: Management and Prognosis; Essential Operation for Chronic Ulcerative Colitis.
Dr. Frank C. Mann, Functions of the Liver; Functions of the Spleen.
Dr. Henry W. Meyerding, Clinical Aspects of Fibrosarcoma of the Soft Tissues of the Extremities; Spondylolisthesis as a Factor in the Cause of Backache.

Society News.—Dr. Rosco G. Leland, Chicago, director, Bureau of Medical Economics of the American Medical Association, addressed the Toledo Academy of Medicine, March 1, on "Proposals and Developments Toward Sickness Insurance."——Dr. Jesse O. Arnold, Philadelphia, addressed the Montgomery County Medical Society, Dayton, April 19, on "Dehydration Treatment of Eclampsia."——Dr. Charles C. Higgins, Cleveland, addressed the Cincinnati Academy of Medicine, April 1, on "Experimental Production and Management of Renal Calculi."——Paul Nicholas Leech, Ph.D., Chicago, secretary of the Council on Pharmacy and Chemistry of the American Medical Association, addressed the Columbus Academy of Medicine, March 25, on "The Physician and His Drugs."——Dr. Richard H. Jaffe, Chicago, discussed "Malignancies of the Lung" at a meeting of the Mahoning County Medical Society, March 19.——Dr. Raymond E. Paul, Botkins, addressed the Shelby County Medical Society, Sidney, March 1, on trichinosis. ——Dr. John F. Beachler, Piqua, spoke on "Early Diagnosis and Prophylaxis of Female Genital Carcinoma" before the Miami County Medical Society, Troy, March 8.—Drs. Kenneth C. McCarthy, Toledo, Floyd T. Romberger, Lafayette, Ind., and Alexander S. McCormick, Akron, presented a symposium on anesthesia before the Summit County Medical Society, Akron, April 2. The society's second "Post-Graduate Day" was held at the People's Hospital, April 17. Subjects presented were compression fractures of the spine, pneumonia, bronchial asthma, birth injuries, Hodgkin's disease and otitis media.

PENNSYLVANIA

Annual Clinic at New Kensington.—The Westmoreland County Medical Society will hold its annual clinic at New Kensington, May 23. Drs. Russell L. Haden, Cleveland, and Arthur M. Shipley, Baltimore, will conduct clinics and Drs. Moses Behrend, Philadelphia, president, and Alexander H. Colwell, Pittsburgh, president-elect of the Medical Society of the State of Pennsylvania, will make addresses. Other speakers will be:

Dr. Walter M. Bortz, Greensburg, Juvenile Diabetes.
Dr. Robert H. Jeffreys, Uniontown, Fractures of the Vertebrae.
Dr. John B. McMurray, Washington, Vertigo.
Dr. Horace B. Anderson, Johnstown, Cardiac Pain in Heart Disease.
Dr. George A. Holliday, Pittsburgh, Treatment of Gonorrhea.

In the evening there will be a banquet at the Hill Crest Country Club.

Bills Introduced.—S. 965 proposes to authorize a licensed optometrist to execute any certificate of ocular conditions or visual efficiency required by any law of the commonwealth. H. 2494 proposes to prohibit the marriage of persons who have been legally declared to be either weakminded, habitual drunkards or lunatics. The bill proposes a procedure for the annulment of such marriages. H. 2500, to amend the laws regulating the practice of osteopathy, proposes to dispense with the present requirement that applicants for a license to practice osteopathy must have acquired a high school education prior to their osteopathic studies by requiring such applicants to have acquired a high school education prior to the time they apply for a license. H. 2502, to amend the law prohibiting the procuring of an abortion, proposes that "if it be found absolutely necessary to save the life of a woman who is pregnant and upon due certification by two licensed physicians, at least one of whom shall be a member of staff of a state-aided hospital, that in their best judgment such is the fact, it shall not be unlawful to procure such miscarriage providing that such operation be performed in a state-aided hospital." H. 2531 proposes that hospitals receiving state aid shall, as a condition to receiving any aid, transmit to each regular session of the general assembly a full and complete statistical and financial report for the last two of its fully completed fiscal years. H. 2637 proposes that the state compensate physicians treating persons bitten by or directly exposed to an animal which in the opinion of a licensed veterinarian is afflicted with or has the appearance of being afflicted with rabies or is found to have been so afflicted by laboratory examination made by the department of agriculture, and to require the department of health to supply without cost sufficient antirabic serum for the treatment of such persons.

Philadelphia

Dr. Burr Receives Strittmatter Award.—Dr. Charles W. Burr, professor emeritus of mental diseases at the University of Pennsylvania School of Medicine, received the twelfth annual Strittmatter Award of the Philadelphia County Medical Society, April 17. Dr. Burr was graduated from the university school of medicine in 1886 and served on the faculty from 1901 until his retirement in 1931. He was neurologist to the Philadelphia General Hospital from 1896 to 1931 and was for many years on the staffs of the Orthopedic Hospital and the Infirmary for Nervous Diseases. He served as president of the Philadelphia Psychiatric Society in 1909-1910 and of the American Neurological Society in 1908. At this meeting of the society a bronze tablet bearing the names of three benefactors of the county society was unveiled. They are Drs. Isidor P. Strittmatter, donor of the award, Dr. James M. Anders, founder of the library, and the late Dr. Lawrence Webster Fox, who contributed to the support of the society. Dr. Joshua E. Sweet, New York, delivered the fifth annual John Chalmers Da Costa Oration on this occasion.

SOUTH CAROLINA

Society Receives Old Souvenir.—Col. Aiken Simons, Charleston, recently presented to the Medical Society of South Carolina a gold medal given to his father, the late Dr. Thomas Grange Simons, in recognition of his work during a yellow fever epidemic in Memphis in 1876. Physicians working in the epidemic organized themselves into a corps known as the Howard Medical Corps, in the name of which the medal was given to Dr. Simons. Dr. Simons was president of the Medical Association of South Carolina, 1888-1889, and during the two following years was president of the Medical College of the State of South Carolina, according to a newspaper account.

TENNESSEE

State Medical Election.—Dr. John B. Steele, Chattanooga, was elected president of the Tennessee State Medical Association at the annual meeting in Nashville, April 11, succeeding Dr. John Owsley Manier, Nashville. Vice presidents elected were Drs. J. Wallace Wilkes, Columbia; Nicholas S. Walker, Dyersburg, and Charles R. Thomas, Chattanooga.

Society News.—Dr. Thomas D. Moore presented a paper on "Conservation of Renal Tissue" and Drs. James R. Reinberger and Percy B. Russell Jr., "Value and Limitations of the Roentgen Ray" before the Memphis and Shelby County Medical Society, March 5.——Drs. Fred L. Moore, Blountville, and Edmund A. Lodge, Johnson City, addressed the Washington County Medical Society, April 4, on "Typhoid Control in East Tennessee" and "Medical and Surgical Treatment of Otitis Media, Mastoiditis and Their Complications," respectively.——Drs. Henry A. Callaway, Maryville, and James W. Norton, Walland, addressed the Blount County Medical Society,

May 2, on "Risk of Carcinoma of the Cervix Following Supravaginal Amputation" and "Treatment of Influenza," respectively.——Dr. James G. Eblen, Knoxville, addressed the Knox County Medical Society, March 5, on "The Abdominal Pain of Throat Infections and Appendicitis in Children."——Dr. John H. Tilley, Lawrenceburg, among others, discussed "Treatment of Compound Injuries" at a meeting of the Hardin, Lawrence, Lewis, Perry and Wayne Counties Medical Society, Hohenwald, March 26.——A symposium on tuberculosis was presented at a meeting of the Chattanooga and Hamilton County Medical Society at Pine Breeze Sanatorium, April 25, with the following speakers: Drs. Tolbert C. Crowell, William D. Anderson, James L. Hamilton, Franklin B. Bogart, Eugene A. Gilbert, John A. Steward and Robert C. Robertson.

TEXAS

State Medical Meeting at Dallas.—The sixty-ninth annual meeting of the Texas State Medical Association will be held in Dallas, May 14-16, under the presidency of Dr. Samuel E. Thompson, Kerrville. Three general sessions will be held at the Baker Hotel, at which the following guests will speak:

Dr. Joseph L. Miller, Chicago, Recent Advances in Our Knowledge of the Thyroid Gland.
Dr. Dean D. Lewis, Baltimore, Cystic Mastitis.
Dr. Horton R. Casparis, Nashville, Tenn., Allergy in Children.
Dr. Edward Lacy King, New Orleans, Puerperal Eclampsia.
Dr. Arthur U. Desjardins, Rochester, Minn., Radiotherapy for Acute and Chronic Inflammatory Conditions.
Dr. Morris Fishbein, Chicago, Medicine in the Changing Social Order.
Dr. Albert C. Broders, Rochester, Minn., Cancer as We Comprehend It.

Several of the guest speakers mentioned will also address section meetings and, in addition, Dr. Stanley J. Seeger, Milwaukee, will present a paper before the section on surgery on the treatment of burns. Dr. Austin A. Hayden, Chicago, secretary, Board of Trustees, American Medical Association, will show at a meeting of the house of delegates a motion picture presenting activities at the headquarters of the Association. There will be symposiums on disorders of the heart, cancer of the uterus, modern indications for therapeutic abortion, tuberculosis, syphilis and communicable disease control and prevention. The following special organizations will hold their meetings during the week: Texas Railway Surgeons' Association, Texas Radiological Society, Texas Neurological Society, Texas Dermatological Society, Texas Society of Gastro-Enterologists, Texas State Heart Association and Conference of County and City Health Officers.

UTAH

Survey of Medical Facilities.—The committee on economics of the Utah State Medical Association has completed a preliminary report on medical service and medical facilities in the state. Geographic and population features create problems in Utah that are met in few other states. Only six states have a population density lower than that of Utah, 6.2 persons per square mile; the most thickly populated county has a density of 256, but nineteen counties have population densities of less than five. The average population per physician for the state is 980, but in the counties the number of persons per physician varies from 719 in Salt Lake County to 2,754 in Duchesne. In Daggett County, which is isolated by mountains and forests, there is no physician. In October 1934 there were registered with the state board of registration 594 physicians, 430 dentists, 1,012 graduate nurses, 35 midwives, 18 chiropodists, 92 optometrists, 27 osteopaths, 64 chiropractors, 15 naturopaths and 462 pharmacists. The committee based its report on questionnaires filled out by 470 physicians, giving their type of practice, charges, income, expense, training, years of practice, hours of work, persons served, preventive services given and charity work. It was found that 18 per cent of the physicians were specialists and 21 per cent partial specialists, nearly all concentrated in Salt Lake City. Contrary to experience in other parts of the country, it was found that younger physicians tended to settle outside the larger cities. Thirty per cent of those who replied reported that they held either part time or full time salaried positions, and 17 per cent more reported that all or most of their work was on a specified fee basis. Concerning individual incomes, it was found that 23.6 per cent of the physicians in Utah had net incomes under $2,000 in 1933 and 61.1 under $3,000. The average number of hours worked per week was 63.7 hours; one physician reported working 104 hours per week and the report interpolates that he suffered a breakdown from heart disease at an unduly early age. Many reported that they had taken no vacations in 1933. Thirty-six hospitals have 3,037 beds, 42 per cent of which are in Utah County, where there are two mental hospitals. Fourteen counties have no hospitals. Nearly one fifth of the physicians replying to the questionnaire expressed dissatisfaction with the hospital facilities available to them. The state has a well organized department of health, but its funds are seriously restricted. County health departments are practically nonexistent. An estimate of the expenditures for the services of physicians in 1933 approximated $2,887,100, or $5.50 per capita for the state. The physicians estimated that, in the first three months of 1934, 29 per cent of their work was charity to those unable to pay; in several counties the proportion was as high as 75 and 85 per cent. Counties make little provision for care of the indigent sick and at least six counties make none, it was said. Study of incomes of the population revealed that 25 per cent of the population were unable to pay for medical service and another 35 per cent were able to bear only part of the cost. As a result of study of these and various other factors, the committee outlined specific recommendations for the provision of better medical service, including the establishment of periodic prepayment plans to certain limited groups governed by certain specific principles. The state association was asked to urge governmental units to make better provision for hospital service, care of the indigent and extension of public health services. Finally it was proposed that a central office be established with a full time executive secretary.

WEST VIRGINIA

State Medical Meeting at Wheeling.—The sixty-eighth annual meeting of the West Virginia State Medical Association will be held in Wheeling, May 6-8, with headquarters at the Hotel McLure and under the presidency of Dr. Rome H. Walker, Charleston. Section meetings will be held the first day. In cooperation with the West Virginia Heart Association, the section on internal medicine will have the following guest speakers:

Dr. George W. Crile, Cleveland, Surgical Treatment of Diseases of the Cardiovascular System; Problems in the Diagnosis and Treatment of the Thyroid Adrenal Sympathetic System.
Dr. Russell L. Cecil, New York, Recent Conceptions in the Therapy of Pneumonia; Bacterial Endocarditis.
Dr. Thomas R. Brown, Baltimore, Peptic Ulcer, with Particular Reference to Differential Diagnosis and Treatment.

Dr. Howard L. Stitt, Cincinnati, will address the eye, ear, nose and throat section on "Bronchial Suppuration of Nontuberculous Origin and Treatment by Bronchoscopy and Bronchial Lavage," and Dr. Stewart H. Clifford, Boston, the section on pediatrics, on "Reduction of the Premature Infant Mortality." The program of the general sessions includes the following addresses:

Dr. Morris I. Mendeloff, Charleston, Management of the Psychoneurotic by the General Practitioner (the oration in medicine).
Dr. Benjamin O. Robinson, Parkersburg, Some High Points in Surgical Progress (the oration in surgery).
Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, The Work of the American Medical Association (motion pictures).
Dr. Elmer Hess, Erie, Pa., Relationship Between Urinary Pathology and Abdominal Symptomatology.
Dr. Clifford, Determination of Fetal Size in Utero by Stereoroentgenometry.
Dr. John E. Brown Sr., Columbus, Ohio, Evolution of Otolaryngology as a Medical Specialty.
Dr. Virgil E. Simpson, Louisville, Ky., Jaundice as a Clinical Phenomenon.
Dr. Irvin Abell, Louisville, Uterine Hemorrhage.

Dr. Fishbein will also make an address at the annual banquet at the Fort Henry Club, Wednesday evening, May 8, on "Our Changing Times." Dr. Walker will make his presidential address Tuesday evening on "Personal Observations on Medical Practice in West Virginia."

WISCONSIN

Bills Introduced.—A. 758 proposes that whenever it is relevant in a bastardy proceeding, the trial court may order the prosecuting witness, her child and the defendant to submit to one or more blood tests to determine whether or not the defendant can be excluded as being the father of the child. The bill further proposes that whenever it is relevant in a civil action to determine the parentage or identity of any child, person or corpse, a court may direct any party to the action to submit to one or more blood tests. A. 765 proposes to prohibit persons, associations or corporations, other than licensed physicians, to make any report to or for any insurance company regarding an applicant for life, accident or health insurance without a license from the commissioner of insurance. A. 733 proposes to authorize the State Medical Society of Wisconsin, or any county medical society, "to undertake and coordinate all sickness care of indigents and low income groups, through contracts with public officials, and with physicians and others, and by the use of contributions, cooperative funds and other means, provided only that free choice of physician within such contracts shall be retained and that responsibility of physician to patient and all other contract and tort relationships with patient shall remain as though the dealings were direct between physician and patient."

GENERAL

Teachers for Sight-Saving Classes.—Courses for the training of teachers and supervisors of sight-saving classes will be offered this summer at the following schools: Western Reserve University, Cleveland, June 24-August 2; State Teachers College, Buffalo, July 1-August 9, and Teachers College, Columbia University, July 8-August 16. Information may be obtained from the schools or from the National Society for the Prevention of Blindness, 50 West Fiftieth Street, New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

Mount Sinai Hospital, New York, and Stony Wold Sanatorium, $25,000 each by the will of the late Dr. Benjamin Stern.

Beekman Street and St. Vincent's hospitals, $500,000; New York Foundling Hospital, $50,000, and Beth Israel Hospital, $200,000, all of New York, by the will of the late Conrad Hubert.

Pittsburgh Eye and Ear Hospital, $50,000, and Trudeau Sanatorium, Trudeau, N. Y., $25,000 from the estate of the late Elizabeth W. Childs, Pittsburgh, following the death of a relative, who is the immediate beneficiary. The remainder of her $150,000 estate is to be held in trust for the Pittsburgh League of Pittsburgh.

Sydenham Hospital, New York, $3,000 from the estate of the late Cornelius Heath.

University of Cincinnati, $12,500 as a gift from Mrs. David May to establish the David May fund in internal medicine in the college of medicine.

Jefferson Medical College, Philadelphia, $250,000 by the will of the late Alba B. Johnson, who was chairman of the board of trustees for many years.

Southeastern Surgeons' Meeting.—Dr. Charles Jefferson Miller, New Orleans, was chosen president-elect of the Southeastern Surgical Congress at its annual meeting in Jacksonville, Fla., March 11-13, and Dr. William D. Haggard, Nashville, Tenn., was installed as president. Dr. Carl C. Howard, Glasgow, Ky., was made vice president, and Dr. Benjamin T. Beasley, Atlanta, reelected secretary. The next session will be in New Orleans. Among speakers at the meeting were:

Dr. Chevalier Jackson, Philadelphia, Asphyxia: Methods for Its Prevention.

Dr. George W. Crile, Cleveland, Technic and End-Results of the Surgical Treatment of Diabetes and of Polyglandular Disease.

Dr. Hugh Cabot, Rochester, Minn., Management of the Incompletely Descended Testicle.

Dr. Walter C. Alvarez, Rochester, Minn., Helpful Hints for Picking Out the Patient Who Would Be Worse After Operation.

Dr. Arthur E. Hertzler, Halstead, Kan., Predicting the Type of Peritonitis That Will Develop from a Given Case of Appendicitis.

Dr. John F. Erdmann, New York, Injuries to the Common Duct, with Consideration of Methods of Repair.

Medical Bills in Congress.—*Changes in Status:* S. 2214 has passed the Senate, conferring jurisdiction on the United States district courts over Osage Indian drug and liquor addicts. *Bills Introduced:* H. J. Res. 248, introduced by Representative Gasque, South Carolina, proposes to create a United States Food Research Commission "to carry into effect such studies as are necessary in order to determine the food values of the various articles used as foods in the several sections of the United States." H. R. 7684, introduced by Representative Terry, Arkansas, proposes to erect an addition to the existing Veterans' Administration facility at North Little Rock, Ark. H. R. 7685, introduced by Representative Johnson, Oklahoma, proposes to increase the efficiency of the Medical Department of the Regular Army by creating a Medical Administrative Corps. H. R. 7629, introduced by Representative Brooks, Pennsylvania, proposes to erect an addition to the existing Veterans' Administrative facility at Aspinwall, Pa. H. R. 7651, introduced by Representative Kimball, Michigan, proposes to authorize the erection of an addition to the Veterans' Administration facility at Camp Custer, Mich. H. R. 7679, introduced by Representative Koppelmann, Connecticut, proposes to authorize the erection of an addition to the existing Veterans' Administration facility at Newington, Conn. H. R. 7691, introduced by Representative Greever, Wyoming, proposes to authorize the erection of an additiof to the existing Veterans' Administration facility at Cheyenne, Wyo. H. R. 7716, introduced by Representative Sanders, Louisiana, proposes to compensate those persons afflicted with leprosy who are patients isolated in the United States Marine Hospital at Carville, La. H. R. 7735, introduced by Representative Green, Florida, proposes to authorize the erection of an addition to the existing Veterans' Administration facility at Lake City, Fla.

Society News.—The American Association for Thoracic Surgery will hold its eighteenth annual meeting in New York, June 3-5. Among speakers listed on a tentative program are Drs. Henry Norman Bethune, Montreal, on "Operative Methods of Closure of Bronchopleural, Pleurocutaneous and Bronchocutaneous Fistulas"; William P. Herbert, Asheville, N. C., "Tuberculous Empyema"; Armistead C. Crump and Haig H. Kasabach, New York, "Treatment of Carcinoma of the Esophagus by Combined X-Ray and Radium"; Richard H. Overholt, Boston, "Pneumonectomy for Carcinoma and Pulmonary Suppuration," and Edward J. O'Brien, Detroit, "The Choice of Procedure."——The American Society of Clinical Laboratory Technicians will hold its third annual meeting at Haddon Hall, Atlantic City, N. J., June 10-12.——The American Association of Medical Milk Commissions will hold its annual meeting in Atlantic City, N. J., June 10-11.——The American Orthopaedic Association will hold its forty-ninth annual meeting in Philadelphia, June 5-8, under the presidency of Dr. DeForest P. Willard, Philadelphia. The program includes two symposiums: one on arthritis will be presented by Drs. Walter Bauer, Robert B. Osgood and Loring T. Swaim, Boston; Ralph Pemberton, Philadelphia; Joseph A. Freiberg, Cincinnati, and Robert W. Johnson, Baltimore. A fracture symposium will be given by Drs. Hiram Winnett Orr and James E. M. Thomson, Lincoln, Neb.; Robert D. Schrock, Omaha; James S. Speed, Memphis, Tenn.; Robert V. Funsten, University, Va., and Kellogg Speed, Chicago.——The annual Alpha Omega Alpha dinner will be held during the annual session of the American Medical Association at the Hotel Ambassador, Atlantic City, N. J., Thursday evening, June 13, at $2 per plate.——The alumni dinner of Rush Medical College (University of Chicago) will be held during the annual session of the American Medical Association at the Hotel Ambassador, Wednesday evening, June 12, at $2 per plate.——Dr. Simeon Burt Wolbach, Boston, was elected president of the American Association of Pathologists and Bacteriologists at the annual meeting in New York, April 19, and Dr. Howard T. Karsner, Cleveland, secretary. Next year's meeting will be held in Boston.——Frank R. Lillie, Ph.D., dean of the division of biological sciences, University of Chicago, was elected president of the National Academy of Sciences at the annual session in Washington, D. C., April 24.——The Academy of Physical Medicine will hold its annual meeting in Atlantic City, June 12-13, at the Hotel Claridge.

Government Services

Rural Health Service

Seventy-three per cent of the rural population in the United States is still without the form of health organization that is considered best adapted to rural areas, according to *Public Health Reports* in a review of rural health service for 1933. During this year there were fifty-five full time health units discontinued and only four established, giving a net loss of fifty-one units. Virginia suffered the greatest loss with the discontinuance of full time health work in nine counties, while Delaware led in the percentage of rural population under full time health service, all of its three counties having been provided with local full time health organization by the state. Of the states in which the local governmental units maintain the health organizations, with or without assistance from the state health department or other sources, Maryland had the highest percentage (97.5) of rural population under full time health service. Of the 530 counties, townships or districts with health service under local full time health officers, 491, or 92.6 per cent, were receiving financial assistance for the support of their health service from one or more of the following agencies: the state board of health, the U. S. Public Health Service, the Rockefeller Foundation, the American Red Cross, the American Women's Hospital Fund, the Rosenwald Fund, the Commonwealth Fund and the Milbank Memorial Fund.

Vender of Cancer Cure Dies of Cancer

The U. S. Department of Agriculture announced that the government's case against Charles W. Mixer, self-styled cancer "specialist" of Hastings, Mich., on a charge of violating the federal food and drugs act, had been dismissed because of the defendant's death from cancer. Even during Mixer's last illness, his office force continued to sell his so-called cancer cure.

Examination for Appointments in the Navy

An examination of candidates for appointment in the Medical Corps of the U. S. Navy will be held at the Naval Medical School, Washington, D. C., and at the Naval Hospital, Mare Island, San Francisco, June 10. Candidates must be between 21 and 32 years old. They must also be graduates of schools listed as class A by the Council on Medical Education and Hospitals of the American Medical Association and must have completed a general internship of at least one year in a hospital accredited for internship by the American Medical Association. For further information address the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 6, 1935.

The Struggle of the Osteopaths for Registration

At the inquiry on the osteopaths' bill in the house of lords, Sir William Jowitt, attorney for the British Medical Association, who addressed the committee, said that the number of persons in this country calling themselves osteopaths was estimated at between 2,000 and 3,000. Among them were 179 who claimed to be "qualified," of whom some ninety-six had gone through the British School of Osteopathy and the other eighty-three had some American qualification, and of these about half were Americans. According to Dr. Macdonald (the physician who practices osteopathy and gave evidence reported previously in THE JOURNAL) there was no reputable school of osteopathy in this country and therefore none fit to be recognized by the state. No osteopath who treated acute diseases had been called before the committee, and there was no evidence that any osteopath in England did. The function of education was to enable the student to think for himself, and it was a mistake to start him from a prejudiced point of view by telling him that he was never to use drugs. The right solution was to let students take their degrees and then work in any way they liked. The bill would do a grave public injury by duplicating machinery and setting up a second register.

Sir Henry Brackenbury, vice president of the British Medical Association and a member of the General Medical Council, said that there was now a movement by the council to place the whole of general biology in the premedical stage, so that the five years medical education would begin after the student had taken this, with physics and chemistry. The osteopath's point of view was not whether a patient had bronchitis or pneumonia or gallstones but whether the basic cause of his disease was in the second or the seventh cervical vertebra. The doctor's diagnosis might or might not have something to do with the spinal column, but it was directed to form a picture as exact as possible of what was going on in the patient's body. To pick out a particular cult for registration would give a cachet of authority to theories unacceptable to almost the whole scientific world. It seemed to him inconceivable that the anatomists and physiologists who for 100 years have been investigating the structural and functional states of the body should have failed to observe the osteopathic lesion.

Sir Edward Sharpey-Schafer

Sir Edward Sharpey-Schafer, F.R.S., emeritus professor of physiology in the University of Edinburgh, has died in his eighty-fifth year. Born in London, he was educated at University College Hospital, where he was a pupil of the great anatomist and physiologist William Sharpey. In 1874 he became assistant professor of physiology to Burdon Sanderson, another great physiologist, who had succeeded Sharpey in the chair. In 1883 he became professor of physiology at University College and in 1899 at Edinburgh. He was invited to lecture at Johns Hopkins University and at Stanford University. His earlier work was mainly histologic. That on the structure of striped muscle, in which he used the wing muscle of insects to illustrate his view, has become classic. With Horsley he made some of the earlier researches on cerebral localization. With Oliver he showed the effects produced by intravenous injection of extracts of the adrenal medulla, which led to the discovery of epinephrine and other hormones. Twenty-three years ago, in a remarkable presidential address to the British Association, he maintained that life was no "mysterious force" but was due to the action of physicochemical laws. He is best known to the general public by his manual prone pressure method of artificial respiration. The physiologist Sir Leonard Hill in a tribute to him recently said that his contributions to physiologic science are stored in the libraries and utilized daily by research workers in extending frontiers that he did so much to advance. His most important books were "Essentials of Histology" and "The Endocrine Organs." He edited an "Advanced Textbook of Physiology," to which leading physiologists contributed. He started and edited, up to his retirement, the *Quarterly Journal of Experimental Physiology*.

Gas Dangers in Air Raids

In a lecture at the London headquarters of the British Red Cross Society, Major H. S. Blackmore, an expert on poison gas, said that the society was training a large body of voluntary workers to protect and aid the civil population in the event of war from the air. The safest shelter in the event of an air raid was an ordinary room rendered gas proof, on or about the first floor. People who rushed into underground tubes or dugouts would not be so safe as those who went quietly upstairs to the antigas sitting rooms, where they would remain until all danger was past. In the air raids there would be two distinct dangers—death or injury from high explosives and from gas. People who rushed underground to avoid explosive bombs would not be safe from gas, which was so heavy that it sank rapidly. A heavy cloud of poison gas tended to disperse 20 feet above the level of the ground. Danger from gas might still be present hours after an attack. Most rooms could be made gas proof by sticking brown paper round the cracks of doors and windows and over the entrance to chimneys. Two wet blankets could be hung over the entrance door, one on the inside and one on the outside.

The Red Cross is concentrating on training a large body of voluntary workers to cope with an emergency. Antigas drill is divided into three parts: 1. Workers in the streets will control crowds and deal with street casualties. 2. There will be Red Cross first aid stations and hospitals. 3. Decontamination brigades will clear away the gas from danger areas and decontaminate the clothes of casualties. It is held that every physician in the country should be trained to deal with gas casualties.

The Methods of a Medical Trade Union

In previous letters the Medical Practitioners Union, a body consisting of more than 5,000 physicians working on trade union lines, has been described. A question asked in parliament shows something of the methods adopted by the union. It appears that it is circularizing local authorities (some of which are under the control of socialist majorities and therefore likely to be sympathetic to it) requesting them to consider the recognition of the union and the insertion of advertisements for vacant medical appointments in its official weekly organ, called the *Medical World*. Sir Hilton Young, minister of health, replied that the law forbade any local or public authority to make it a condition of employment of any person that he should, or should not, be a member of a trade union.

Damages for Negligence Against an Osteopath

It is unfortunate for the osteopaths that, just at the time when they are attempting to convince parliament that they are worthy of recognition, heavy damages for negligence should be awarded against a well known osteopath, Captain Lowry, who lost his sight at the battle of Neuve Chapelle. He qualified as a masseur from St. Dunstan's (the institution established for the training of blinded soldiers) and he has practiced as an osteopath since 1925. A girl was taken to him for rheumatism. He scouted the diagnosis and said that she had a twisted intestine and a slight dislocation of the left hip. He manipulated the joint under an anesthetic and she was taken home in great

pain. She was found to be suffering from fracture of the neck of the femur, which was plated by a surgeon. Captain Lowry denied that anything untoward happened when he was manipulating the patient's limb or that he used violence. In his evidence he claimed great delicacy in his sense of touch, which he demonstrated by telling what card of a pack was placed in his hand by passing his fingers over the face. While the judge expressed admiration for his courage and success in taking up a new career after he had lost his sight in his country's service, the jury awarded $7,500 damages to the girl.

PARIS

(From Our Regular Correspondent)

March 29, 1935.

Proposed Changes in Social Insurance Law

In a recent letter, mention was made of a deficit in the budget of the social insurance law. An effort is being made to correct the abuses and deficit in the form of a law submitted February 27 by Senator Edmond Cavillon, supported by 184 of his colleagues, which number constitutes a majority of the French senate.

The arguments in favor of changing the law are as follows: The economic crisis has begun to involve France, in spite of continued resistance to its effects. It has become imperative to reduce government expenditures to the minimum. This is especially applicable to the social insurance law, which, since its introduction in 1930, has aroused much justified criticism and an unexpected lack of success. It is not the intention of the legislature to annul the law, which is based on the highest motives toward the amelioration of social conditions. Several efforts to annul the law or suspend it temporarily have been defeated. This would signify that, in principle, there is no opposition to such a law. Such an agreement as to the aims of social insurance, however, must not permit a government to omit every effort to simplify the law and to reduce the complicated machinery that has been necessary in carrying it out; above all, it has become imperative to lighten the burden of expenditures, which the deficit in the budget of social insurance has compelled the government to pay. "To recognize the fact that one has been wrong is not an evidence of weakness" is a quotation from an article by Milan in the *Revue politique et parlementaire*, written in 1933, who is quoted further as saying: "The law is badly thought out. Let us have the courage to recognize this and correct its faults."

Public opinion has demanded changes in the law, but only a few absolutely necessary ones have been made. The law is obligatory, but the question has arisen as to whether this principle of obligation is being respected. Even the government does not compel its employees to be insured. More than ten million people are subject to the law, but only five million industrial and 640,000 out of 1,000,000 of those in agricultural pursuits are paying their premiums. Whether respected or not, the social insurance law has had some important financial consequences. From July 1, 1930, to Oct. 31, 1934, the figures are as follows:

Premiums received from employers and employees	14,050,000,000 francs
Additional expenditure by the government in the form of subsidies and supplementary credits	3,500,000,000 francs

This is a burden for the government that cannot be well tolerated during the present economic crisis.

The outlay on the part of the government for the administration of the law alone (included in the figures) amounts to more than 100 million francs (six and a half million dollars). This figure corresponds only to a part of the outlay for social insurance. One must add an equal amount for the expenses of carrying out the law, by the caisses or bureaus of collection and distribution of the premiums and benefits. In spite of every effort to economize, the various offices in charge of the administration of the law complain of not having enough personnel.

A glaring defect in the law is that relating to old age insurance. The idea of the legislator was to permit a large number of older workers to retire and thus create jobs for younger persons. A large number of workers who were more than 65 years old when the law went into effect in July 1930 have been excluded from the benefits of the law and are not eligible for old age pensions.

The 185 senators who signed the petition to change the law conclude as follows:

"After so many demands for reform in the social insurance law, we also add ours to change a law that has not been satisfactory to employers, employees or administrators of the law.

"The principal objective of such a reform is to simplify the law in such a manner as will increase the efficiency and decrease the expenditures.

"The law from a theoretical point of view is good but it should be made simpler, more practical, more humane and less costly."

Students Appear Before Committee of Legislature

Representatives of the national and local student organizations presented their side of the agitation against foreign physicians, February 13, before the committee on hygiene of the chamber of deputies. The student organizations demanded the following:

Only French students who have completed their required courses and are eligible for state diplomas can act as substitutes for physicians. Such substitution shall be legalized by the local authorities. More careful investigation of the records of those who apply for naturalization shall be made by the police. The faculties of the medical schools have not been strict enough in accepting equivalents for the bachelor of arts degree, which is necessary for admission. No one shall be permitted to change the "university diploma," which does not entitle its holder to practice in France or its colonies, into a "state diploma," which does bestow the right to practice. No one shall be allowed to practice here unless naturalized ten years before graduation. Military service shall be obligatory for all such individuals.

One Hundredth Anniversary of Death of Dupuytren

Exercises will be held, April 7, in memory of the French surgeon Dupuytren. He died Feb. 7, 1835. Professors Cuneo and Carnot will preside at the meeting, which will be held at the Hôtel-Dieu, one of the oldest hospitals and the one in which the famous surgeon worked.

The Franco-Mussulman Hospital in Paris

There are at present in Paris 50,000 natives of the French colonies, especially those in northern Africa. The government therefore decided to construct a hospital so as to give these natives the benefits of modern medicine and at the same time conform to their habits and religion. The new hospital, opened March 22, is situated in one of the suburbs of Paris. The surgical service is in charge of Dr. Maurice Thalheimer, an assistant of Professor Gosset and well qualified to fill the position.

French Gynecologic Congress

This year's French Gynecologic Congress will be held June 8-10 at Salles-de-Bearn, a watering place specializing in gynecologic ailments. The honorary president is Dr. Doleris and the president is Professor Guyot of Bordeaux. The chief subject to be discussed is "Genital hemorrhages, excluding those due to pregnancy and tumors." The papers include those on the anatomy of the female genital tract, hemorrhages due to systemic and local causes, and medical, physical therapeutic and surgical treatment of genital hemorrhages.

BERLIN

(From Our Regular Correspondent)

March 4, 1935.

Disability Insurance in 1933

The president of the Reichs-Versicherungsamt has just published a report dealing with disability insurance for the year 1933. Disability insurance is quite distinct from the ordinary health insurance; it provides insurance for invalids and the aged, and the insured members have usually paid their premiums over a long period. As the president, Dr. Schäffer, stated, the position of this insurance in the beginning of 1933 was very discouraging. By reason of the constantly diminishing receipts, the fulfilment of the legal obligations encountered difficulties, so that assets of the disability insurance had to be liquidated at a heavy loss. The total expenditures for the application of the various therapeutic procedures and for cash benefits had to be restricted to 40,000,000 marks ($16,000,000). Including the supplementary performances, the carriers of disability insurance received in 1933 approximately 41,500,000 marks for the promotion of health, as compared with 51,500,000 marks in 1932. Actual therapeutic measures required the expenditure of about 29,000,000 marks, general measures 9,700,000 marks and care of orphans 155,000 marks, while miscellaneous expenditures amounted to 2,600,000 marks. The report contains this statement: "To what extent this enforced limitation of the therapeutic procedures will result in an exacerbation of health conditions among the insured members and in an increase of cases of disability cannot be determined as yet." The expenditure of the 29,000,000 marks sufficed to provide adequate and complete treatment for 89,118 persons affected with various diseases: 24,815 with tuberculosis (including lupus), 9,109 with venereal disorders, and about 55,000 with other disorders, which included some 21,000 with dental disease. Disorders affecting the nerves, the heart, the vascular system and the digestive organs were much in evidence. The average expenditure for a patient with pulmonary or laryngeal tuberculosis was 753 marks; in the other diseases, about 300 marks. As compared with 1932, the average expenditures were much lower, as may be seen from the table.

Average Expenditures for Patients in 1932 and in 1933

Type of Disease	Cost per Case in 1932, Marks	Cost per Case in 1933, Marks
Pulmonary and laryngeal tuberculosis	874.37	752.92
Tuberculosis of bones and joints	1,286.36	1,059.75
Lupus	724.36	663.59
Venereal disease	224.36	189.34
Rheumatism	347.74	311.39
Cancer	276.57	253.05
Other diseases	351.11	304.89

It is interesting that, of 121,798 patients supposedly with venereal disease, only about half (63,887) were actually affected. More than 40,000 presented themselves voluntarily for examination, which speaks well for the functioning of the consultation centers. Aside from the actual therapeutic procedures, the general measures for the prevention of premature disability among the insured or for the improvement of their health constitute an important field of endeavor, which includes the creation and support of therapeutic centers, welfare aid centers, and the extension of welfare aid for therapeutic purposes to the uninsured or underinsured juveniles and to mothers with a large number of children. For these purposes nearly 10,000,000 marks was supplied in 1933 (11,700,000 marks in 1932). It was regrettable that retrenchment was necessary in the matter of welfare aid for children; only about 3,000,000 marks was available for this purpose. Finally, the health measures of disability insurance, included the granting of loans for public enterprises; for example, for the improvement of the bad housing situation or for the creation of healthy dwellings to lessen the dangers of infection. In the main, funds for the erection of small, moderately priced dwellings are lent to building and loan associations. Up to the end of 1933 a total of 337,700,000 marks ($135,000,000) had been lent for such purposes. Also for the promotion of the general welfare; namely, for the construction of hospitals and homes for convalescents, therapeutic centers for persons of moderate means, homes for invalids, bath establishments for the masses, water systems, and the like, the carriers of disability insurance have always furnished funds, as far as they were able, the total of such expenditures amounting up to the end of 1933 to 560,000,000 marks ($224,000,000).

The Typhoid Epidemic in Children

Of 187 cases of typhoid that were treated in Königsberg, fifty occurred in children. Of this number, forty-one were treated in the Municipal Hospital. At a meeting of the Königsberg Medical Society, Dr. Rau discussed this series of cases. The number of cases of typhoid in children, as compared with the number of adults affected, was small, although the milk used was the apparent cause. This fact seems at first hard to understand, since young persons commonly drink much more milk than adults. These forty-one patients belonged to forty families with a total of ninety-three children. It appears, therefore, that in fifty-two children who likewise drank infected milk no infection developed. The course of the disease in these children was rather severe, whereas typhoid in children generally takes a mild course. Nine children were entirely unconscious for some time. High temperatures lasted, without complications, from six to eight weeks. The usual blood picture, with leukopenia and aneosinophilia, was present in only a little better than half the patients (57 per cent). Hemorrhages, otitis purulenta and peritonitis occurred in only three cases. Only one case ended fatally. As a special therapeutic measure the children were given an ample mixed diet, to preserve their strength as long as possible. On the appearance of diarrhea, they were given crushed banana or crushed raw apple, together with the application of the usual measures. The results were good. Perforation of the intestine did not occur in a single case. There were, however, relapses in fifteen cases.

In the Rostock University Children's Clinic, according to the statements of Dr. Erben, the systematic application of the Widal test to all new entrants among the children made it possible to diagnose many cases of apparently nonspecific influenza-like infections and intestinal catarrh as typhoid. But only an agglutination titer of at least 1:400 was found to be pathognomonic.

The Probability of Multiple Births

A compilation of the multiple births occurring in Germany in the years 1901-1925 shows that, of the 42,107,657 births recorded in this period, 531,541 were twin, 5,364 were triplet, and sixty-seven were quadruplet births. One group of quintuplets was born. In general, it is figured that one twin is born out of eighty children, one triplet out of about 6,400 and one quadruplet out of 500,000. A quintuplet birth occurs only once in fifty million births. With the exception of the recent report of the quintuplets in Canada, there are no reasonably authentic reports of quintuplets who all survived for any considerable time. The probability of multiple births can be reduced to a mathematical formula. The number of births to be expected may be expressed by the formula $1:n^{x-1}$, n being the number of single births that occur in a given country in relation to a twin birth, while x shows the nature of the multiple birth (twins, triplets, quadruplets). For example, in Ger-

many n^{s-1} for triplets $= 80^{3-1} = 80^2 = 6{,}400$. In determining the number of quadruplets $n^{s-1} = 80^3 = 512{,}000$. In ascertaining the relation of the number of quintuplets to the total number of births the formula $1 : n^{s-1} = 1 : 80^4 = 1 : 40{,}960{,}000$. One obtains accordingly with these formulas figures that correspond to the actual conditions. According to this formula, sextuplets might be expected once in three billion births.

Prof. Walter Spielmeyer

Prof. Dr. Walter Spielmeyer, director of the Brain Institute of the Deutsche Forschungsanstalt für Psychiatrie in Munich, died, February 6, at the age of 55. Spielmeyer carried further the work of the school of Nissl and von Alzheimer, and during the past twenty years had been the unquestioned leader in anatomy of the brain. He was regarded as the leading authority with respect to the only histologically recognizable anatomic changes in mental diseases, infections and intoxications of the brain, the nervous system, the medulla oblongata and the spinal cord. His most important researches dealt with the changes due to paralysis. He succeeded in helping to establish a pathologic anatomy of the psychoses, a science that is already out of its infancy. Many years elapsed before this branch of research gained recognition; philosophical opinions were, however, advanced to the effect that disorders of the intellect, mind and psyche should be considered in the same manner as the disorders of the body. He was able to complete the first volume of his textbook on the histopathology of the nervous system.

ITALY

(From Our Regular Correspondent)

Feb. 15, 1935.

Congress of the Neurosurgical Society

The Società radio-neuro-chirurgica held recently its national congress in Milan, under the presidency of Professor Donati. The chief topic on the program was "Research Criteria in Disorders of the Neuraxis."

Professor Boschi dealt with the diagnosis of endocranial tumors.

Professor Bertolotti, the speaker on the radiologic side of the subject, based his presentation on his personal experience with a large series of cases. Speaking of the ventricular system and of the subarachnoid spaces, he stated that Dandy was able to demonstrate, in experiments on internal hydrocephalus, that, when there is an obstruction along the circulatory path of the cerebrospinal fluid, the part of the system that lies above the obstruction becomes dilated. This fundamental observation led Dandy to the discovery of two methods of gas insufflation: spinal encephalography and direct ventriculography. With regard to the technic of spinal encephalography, the speaker holds that it should always be total and hence is not adapted to small insufflations. One cannot, however, hope to procure the visualization of all the windings through which the cerebrospinal fluid circulates. It is necessary to repeat the radiographic tests at intervals during the first twenty-four hours; the stereoscopic examination is likewise valuable. Encephalography is particularly useful in determining the effects of cranio-encephalic traumas, in which the phenomenon of the migratory ventricle and that of the unilateral internal hydrocephalus may be seen. In case of tumors, and when there are clinical symptoms of hypertension, the speaker thinks it is more advantageous to apply direct puncture of the ventricles. In cases of jacksonian epilepsy, encephalography is still the only means of reaching an early diagnosis of cerebral tumor. It constitutes a valuable means of research also in the study of essential epilepsy. The use of opaque substances such as iodized oil and thorium dioxide sol may give good results, but their harmlessness has not yet been demonstrated. The author concluded that collective experience shows that the symptomatology of cerebral tumors is insufficient to establish an exact topographic diagnosis.

Prof. Raffaele Bastianelli, senator, to whom was assigned the surgical presentation, emphasized that, in disorders of the neuraxon, examination of the spinal fluid is highly important. The fluid may be taken from the cisterna or through lumbar puncture, but only ventricular puncture, with visualization of the ventricles, enables one to ascertain accurately the condition of the brain. To study exactly the conditions in the ventricles it is advisable to make a bilateral puncture at symmetrical points. For the occipital puncture the speaker recommended the prone position.

The average capacity of the ventricles is 25 cc., as measured by aspirated extractions. The interventricular communication is revealed by injecting 2 cc. of indigo carmine into one of the ventricles and observing whether the colored fluid emerges on the other side. In applying ventriculography a certain quantity of fluid is extracted and an equal quantity of air is slowly injected. This is reabsorbed within three to five hours by the subarachnoid space, and after six to ten hours by the ventricles. If the ventricular system is obstructed, the reabsorption of the air may possibly require several weeks.

The injection of the air produces irritation of the ependyma and hence hypersecretion of the cerebrospinal fluid and increase of the intraventricular pressure. Headache, nausea and an increase of temperature of from 1 to 2 degrees occur. A drowsy state is cause for alarm. In case of tumors with hypertension and hydrocephalus, the injection of air is dangerous. But the observations of ventriculography are not probative unless there is obstruction of the downward flow of the cerebrospinal fluid or ventricular deformation. There are some failures, but they are often the consequence of faulty technic. On the whole, it may be said that with this method the possibility of diagnosis is from 70 to 90 per cent in case of tumors. Ventriculography is especially indicated if there is an increase of the endocranial pressure for which no cause can be determined. If there is no increase of pressure, encephalography is preferable, since the ventricles do not recover so readily and the quantity of air injected is less.

Barrè of Strasbourg stated that he regarded as true hypertension of the cerebrospinal fluid that which exceeds 50 mm. of water in the supine position. He explained the syndromes due to the vestibular paths—the cochlear, the pyramidal and the extrapyramidal. Mascherpa of Milan spoke on the opaque substances to be used in ventriculography, stating that at present one is confined to the introduction of iodized oil, in accordance with the Arce technic.

Palmieri of Bologna emphasized that the use of contrast mediums in radiology should not cause ordinary craniography to be discarded. The latter, however, gives only indirect signs, which require a more careful interpretation than the direct signs supplied by pneumography.

Prof. Carlo Lotti

Prof. Carlo Lotti, occupant of the chair of special medical pathology at the University of Pisa, has died at an early age. He was a representative of the Florentine school and had been *aiuto* in clinical medicine under Professor Grocco, and later director of the Antirabic Institute. He held then successively a chair in medical pathology at the universities of Sassari, Cagliari and Pisa. Among his numerous publications, particular interest attaches to those on peritoneal infection, the opsonins and the bacteriotropines, on recurring tuberculous meningitis and on favism. Sixty publications by his pupils demonstrate the importance of his work as a teacher. He collaborated in the compilation of the Italian Treatise on Internal Medicine, having prepared the chapter pertaining to the diseases of the peritoneum.

BELGIUM

(From Our Regular Correspondent)

March 6, 1935.

Government Supervision of Home Work

The government has passed a law providing for the supervision of home work. A commission has been appointed whose duty it will be to decide questions of wages and hygiene pertaining to home workers of both sexes. Within the present law, a home worker is a person performing work either in his own home or in some other place that is not assigned to him by his employer, provided he has no more than four assistants. The assistants of a domiciliary worker benefit from the present law, irrespective of the place in which they are employed. The commission—Comité national pour le travail à domicile—is composed of three industrialists, three workmen, and a person well versed in the economic and social sciences, who will be the chairman. The king chooses the members of the commission—the industrialists and the workmen—from the list of candidates presented by the professional organizations that best represent the employers and the workmen. The Comité national studies questions pertaining to the hygiene of these workers at the request of the communal administrations of the localities in which the workmen are engaged. Its conclusions are communicated to the minister of industry and are submitted by him to the Conseil supérieur du travail and to the Conseil supérieur de l'hygiène. A royal decree, at the suggestion of the minister of industry, will convert, if it seems desirable, these conclusions into compulsory regulations.

A New Physical Education Society

Under the chairmanship of Professor Spehl, the Société médicale belge d'éducation physique et de sports has been created. At the opening session, Dr. Brouha pointed out the increasing interest in problems of personal hygiene and the great need of scientifically trained directors. The group of physicians engaged in physical education will have to organize sport on a more scientific basis. The government saw the needs of the situation among the youth in our universities when it created two institutes of physical education at Ghent and at Liége, which will be ready to function in 1935. But this action should be extended to all educational institutions, as is being done in central Europe, France and Italy. In any event, the medical control of physical education and of sports should remain in the hands of the physicians. A reform of instruction from this point of view is desirable, notably as regards a diminution of the lecture and recitation hours. It is to be hoped that the society will collaborate with the Commission supérieure d'éducation physique and with similar international societies and participate in the various congresses, at which Belgium has never been represented. Mr. René Ledent stated the purposes of the society, which will be chiefly to give proper guidance to the universities, the secondary schools and the societies in establishing relations with the medical societies in foreign countries, to defend the rights and outline the activities of the physicians in the practical organization of sport, and to take an interest in the organization of school programs.

The Crusade Against Quackery

All countries are interested in the efforts being put forth to eradicate quackery, which is developing in all corners of the globe. At the meeting in Madrid of the Union internationale contre le péril vénérien, Mr. Schraenen of Brussels presented a paper dealing with the legislative measures of various countries to combat quackery in medicine, which is an actual menace and is a hindrance in the crusade against venereal diseases. It is regrettable that some countries ignore officially the crusade against charlatanry. The lack of interest manifested by certain legislators is due to legal and financial problems or to lack of appreciation of the great need. The forms of medical quackery vary. One type is organized by individuals who are not physicians and who have no professional qualities. Against this type the laws pertaining to the illegal practice of medicine may be invoked. Other types of charlatanry are organized by persons who have had a professional training (pharmacists, for example), or even by persons holding a medical diploma. That the charlatans without professional training are a public menace will be admitted without question. Forty-five countries, including the United States and Canada, have adopted legal measures for the suppression of charlatanry. The law most frequently invoked is that prohibiting the illegal practice of the art of healing. In Europe, the crusade against the illegal practice of medicine is the best organized in France; but the charlatan with a medical diploma is not reached by the law. In Spain, advertising by charlatans is suppressed by law. There are two types of legislation against charlatanry in Europe, that of Germany and that of Great Britain. But in Germany there is no law prohibiting the illegal practice of medicine. There are, however, legal provisions prohibiting charlatanry in the matter of venereal diseases. In other countries (Brazil, Australia, Canada and Cuba) laws prohibiting charlatanry have been promulgated, but they are not always well enforced.

Center for the Instruction of Diabetic Patients

Rahier and van Themsche report, in the *Bruxelles médical*, the organization of a therapeutic and prophylactic service for diabetic patients. As diabetes is widespread, the authors thought that therapeutic and prophylactic measures might be adopted against this disease the same as against venereal diseases. The benefits of this therapeutic organization will be felt by the people as a whole. As a result, diabetic patients will no longer constitute a heavy load for the health insurance societies; the patient receives proper training in caring for himself, and a periodic examination of patients under supervision is carried out. The authors hold that the capacity of diabetic persons scientifically supervised justifies their employment in occupations not requiring too intense muscular work. Diabetic persons no longer constitute "dead timber" in the labor market. They can perform the duties of an occupation that is not too fatiguing, provided they realize the importance of the rôle of insulin and of a well regulated diet and will follow strictly the prescriptions and the advice of their physicians.

Marriages

E. Donald Asselin, Nashua, N. H., to Miss Valeria Elizabeth Bergmann of New York, March 5.

William R. Beach Jr., Hudson, N. C., to Miss Myrtle Elizabeth Poole of Stoneville, April 10.

Robert R. Shaw, New York, to Miss Ruth Conser of Salem, Ohio, at Toccoa Falls, Ga., April 6.

Amos Vastine Persing Jr., Allenwood, Pa., to Miss Varissa Payne of Pittsburgh, March 21.

James Eugene Stroh, Seattle, to Miss Alyce Lorraine Lewis of Fresno, Calif., February 27.

Virgil O. Choate, Galax, Va., to Miss Millie S. Gilbert, at Patrick Springs, April 18.

Thomas J. Van Zant to Miss Jane Amerman, both of Houston, Texas, March 5.

David Paine, Worcester, Mass., to Miss Mary Page Teele of Marblehead, April 13.

Samuel J. Burrows, Chicago, to Miss Margaret Palmer of New York, April 24.

Leopold Adler to Miss Regina Silberstein, both of Detroit, March 17.

Deaths

Frank Swift Bourns ● Seattle; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; in 1896 professor of pathology and bacteriology, Southern Medical College, Atlanta; veteran of the Spanish-American War; president of the board of health of Manila, P. I., in 1899, and commissioner of public health of the Philippines in 1902; chief medical inspector for the health department of Seattle in 1909; member of the Radiological Society of North America; aged 68; on the staff of the Columbus Hospital, where he died, March 17, of coronary sclerosis and acute myocarditis.

John Aloysius Reidy ● Albuquerque, N. M.; Jefferson Medical College of Philadelphia, 1903; also a dentist; fellow of the American College of Surgeons; formerly member of the city council and board of health; on the staffs of St. Joseph Sanatorium and Hospital and the Southwestern Presbyterian Sanatorium; secretary-treasurer of the board of regents of the University of New Mexico from 1919 to 1926; aged 63; died, February 20, in Rochester, Minn., of carcinoma of the colon and bronchopneumonia.

George William Cale Jr., Texarkana, Texas; St. Louis College of Physicians and Surgeons, 1887; fellow of the American College of Surgeons; member of the State Medical Association of Texas; veteran of the Spanish-American War; aged 68; chief surgeon and superintendent of St. Louis Southwestern Hospital, Texarkana, Ark.; formerly on the staff of St. Luke's Hospital, St. Louis, where he died, March 24, of complications, following an operation for gastric ulcer.

James John Monahan, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the Illinois State Medical Society; fellow of the American College of Surgeons; clinical associate in orthopedic surgery, Loyola University School of Medicine; aged 58; on the staff of St. Elizabeth's Hospital, where he died, April 13, of coronary thrombosis.

Thomas Glendenning Hamilton, Winnipeg, Manit., Canada; Manitoba Medical College, Winnipeg, 1903; past president of the Manitoba Medical Association; fellow of the American College of Surgeons; formerly lecturer of clinical surgery at his alma mater; aged 61; on the staff of the Winnipeg General Hospital, where he died, April 7, of angina pectoris and coronary occlusion.

Talbert Benson Hughes, Jonesboro, Tenn.; Chattanooga Medical College, 1902; at one time member of the state legislature; for many years in the government service in charge of various hospitals in the Indian Service; formerly head of the x-ray department of the Veterans' Administration Facility, Augusta, Maine; aged 61; died, March 21, of nephritis and arteriosclerosis.

Clarence Francis Moriarty, Annapolis, Md.; Dalhousie University Faculty of Medicine, Halifax, N. S., 1925; member of the Medical and Chirurgical Faculty of Maryland; served during the World War; formerly member of the state departments of health in Maryland, Virginia and the Philippines; aged 37; died, January 14, of glioma of the left temporoparietal lobe.

Joseph Raye Rhuman ● Los Angeles; Gross Medical College, Denver, 1902; assistant clinical professor of medicine (pediatrics) University of Southern California School of Medicine; member of the American Academy of Pediatrics; on the staff of the Children's Hospital; aged 54; died, March 9, in the Good Samaritan Hospital, of coronary thrombosis.

Luther Conklin Payne ● Liberty, N. Y.; University of Buffalo School of Medicine, 1900; councilor of the Third District of the Medical Society of the State of New York; secretary of the Sullivan County Medical Society; for many years health officer of Liberty; aged 57; died, March 16, of influenza and pneumonia.

Frank Raynor de la Vergne ● Fairbanks, Alaska; Long Island College Hospital, Brooklyn, 1893; past president of the Alaska Territorial Medical Association; at various times mayor; served during the World War; on the staff of St. Joseph's Hospital; aged 68; died, March 27, of diabetes mellitus.

Eli Lida Dawson, Chickasha, Okla.; University of Louisiana Medical Department, New Orleans, 1883; Jefferson Medical College of Philadelphia, 1888; member of the Oklahoma State Medical Association; city health officer; on the staff of the Chickasha Hospital; aged 79; died, February 8.

John Wesley Crane ● Colrain, Mass.; University of Vermont College of Medicine, Burlington, 1888; past president of the Franklin County Medical Society; for many years secretary of the board of health of Colrain and member of the school board; aged 76; died, April 5, of pneumonia.

Frank Riley Burton, Barbourville, Ky.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1911; member of the Kentucky State Medical Association; secretary of the Knox County Medical Society; aged 52; died, March 12, of malignancy of the stomach and liver.

Jacob Nathaniel Rape, Moss Point, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1891; member of the Mississippi State Medical Association; secretary and past president of the Jackson County Medical Society; aged 75; died, February 4.

George Morris Hall, Brockton, Mass.; Harvard University Medical School, Boston, 1923; member of the Massachusetts Medical Society; served during the World War; aged 43; died suddenly, March 4, in the Boston Psychopathic Hospital, of cerebral edema.

Brendan William Murphy, Bridgewater, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1923; served with the Canadian Army during the World War; aged 39; died, April 3, of hypertension, chronic myocarditis and nephritis.

Frederick E. Sonnenfeld, Chicago; Chicago Hospital College of Medicine, 1917; member of the Illinois State Medical Society; on the staff of the Roseland Community Hospital; aged 47; died, April 12, in the Passavant Memorial Hospital, of uremia.

Charles H. Johnson ● Atchison, Kan.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; on the staff of the Atchison Hospital; aged 65; died suddenly, April 3, of heart disease.

Charles E. Fish, Wheatland, Wyo.; Drake University College of Medicine, Des Moines, 1907; member of the Wyoming State Medical Society; aged 55; died, February 11, in Denver, of peritonitis and carcinoma of the bladder.

Karl William Schlegel ● Milford, Ill.; University of Illinois College of Medicine, Chicago, 1932; aged 36; died, April 13, in the Lutheran Deaconess Home and Hospital, Chicago, of injuries received in an automobile accident.

Frank Thoburn Nason, McKeesport, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1889; Bellevue Hospital Medical College, New York, 1894; aged 68; died, April 4, of thrombosis of superior mesenteric vessels.

Manuel Winter Jackson, Water Valley, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1900; member of the Mississippi State Medical Association; aged 70; died, March 9, of pneumonia.

John Webb Decker, Lake City, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; formerly village president, village clerk and coroner; aged 72; died, March 19, of myocarditis.

Robert C. Droege, Lakewood, Ohio; Western Reserve University Medical Department, Cleveland, 1897; member of the Ohio State Medical Association; aged 60; died suddenly, March 17, of coronary thrombosis.

Maurice A. Bunce, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; aged 61; died, March 19, of heart disease.

John Ross Jameson ● Wooster, Ohio; Medico-Chirurgical College of Philadelphia, 1894; past president and secretary of the Wayne County Medical Society; aged 69; died, February 28, of bronchopneumonia.

James Harvey Cleaver, Los Angeles; University of Maryland School of Medicine, Baltimore, 1880; formerly mayor of Council Bluffs, Iowa; aged 78; died, February 7, in the California Lutheran Hospital.

Louis Lucien Rabouin ● New Orleans; Tulane University of Louisiana Medical Department, New Orleans, 1892; aged 68; died, February 25, in the Touro Infirmary, of arteriosclerotic heart disease.

George Richard Sullivan, Decatur, Ala.; Shelby Medical College, Nashville, Tenn., 1859; member of the Medical Association of the State of Alabama; Confederate veteran; aged 97; died, February 14.

Robert C. Newell, Maywood, Ill.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1879; aged 84; died, April 7, in the Cook County Hospital, Chicago, of chronic nephritis and uremia.

Simril McDowell Henderson, Charlotte, N. C.; University of Maryland School of Medicine, Baltimore, 1894; aged 65; died, April 12, in the Highsmith Hospital, Fayetteville, of cerebral hemorrhage.

Thomas K. Jacobs Jr., Lima, Ohio; Medical College of Ohio, Cincinnati, 1880; aged 79; died, March 14, in the Lima Memorial Hospital, of arteriosclerosis, infection of the foot and myocarditis.

Benjamin Junius Cooke, Indianapolis; Meharry Medical Department of Central Tennessee College, Nashville, 1890; aged 71; died, March 22, in the Community Hospital, of chronic myocarditis.

Wiley Moroni Cragun, Ogden, Utah; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1911; aged 50; died, February 18, of coronary thrombosis.

Henry Bohan Noble, Howard, S. D.; Missouri Medical College, St. Louis, 1882; for many years county health officer; aged 86; died, January 10, in Manchester, Iowa, of coronary thrombosis.

Gebhard Joseph Long Jr., Ramona, S. D.; Rush Medical College, Chicago, 1909; member of the South Dakota State Medical Association; aged 49; died, February 22, of lobar pneumonia.

Glenn Robert Longnecker, Washington C. H., Ohio; Eclectic Medical College, Cincinnati, 1922; aged 43; died, February 21, in the Veterans' Administration Facility, Dayton, of pneumonia.

Emilie E. Sullivan Rauch, Belvidere, S. D.; Sioux City (Ia.) College of Medicine, 1903; county health officer; aged 71; died, January 31, of carcinoma of the cervix and myocarditis.

Charles Arthur Gardiner, Sunset, La.; Tulane University of Louisiana Medical Department, New Orleans, 1896; member of the Louisiana State Medical Society; aged 62; died, February 15.

Richard Nathan Mackey, Clarks Summit, Pa.; Medico-Chirurgical College of Philadelphia, 1910; served during the World War; deputy coroner; aged 47; died, April 1, of pneumonia.

John Genar Ash, Mount Sterling, Ill.; Kentucky School of Medicine, Louisville, 1896; member of the Illinois State Medical Society; aged 66; died, March 17, of lobar pneumonia.

Solomon Myers, Boston; Harvard University Medical School, Boston, 1900; member of the Massachusetts Medical Society; aged 62; died, January 18, of coronary thrombosis.

Livingston Franklin Johnson, Dillon, S. C.; Jefferson Medical College of Philadelphia, 1905; aged 57; died, April 4, in the McLeod Infirmary, Florence, of coronary occlusion.

Carl August Dreiss, Fort Worth, Texas; Ensworth Medical College, St. Joseph, Mo., 1899; served during the World War; aged 71; was found dead, March 20, of heart disease.

Samuel T. Sealy, Mounds, Ill.; Meharry Medical College, Nashville, Tenn., 1909; member of the Illinois State Medical Society; aged 50; died, March 3, of cerebral hemorrhage.

William Peter Smith, Troy, Mo.; Beaumont Hospital Medical College, St. Louis, 1893; member of the Missouri State Medical Association; aged 64; died, February 8.

Peter James Parker, San Diego, Calif.; Jefferson Medical College of Philadelphia, 1871; member of the California Medical Association; aged 89; died, March 15, of myocarditis.

Bert Martin Johnson, Imola, Calif.; St. Louis University School of Medicine, 1925; on the staff of the Napa State Hospital; aged 43; was found dead in bed, February 28.

Joseph Henry Cosgrove, Duluth, Minn.; University of Minnesota Medical School, Minneapolis, 1906; aged 55; died, February 7, of coronary occlusion and myocarditis.

William Sellman Welch, Annapolis, Md.; College of Physicians and Surgeons, Baltimore, 1885; formerly health officer of Annapolis; aged 81; died, February 11.

Charles Emerson Jones Jr., Hartford, Conn.; University and Bellevue Hospital Medical College, New York, 1909; aged 50; died, January 24, of coronary thrombosis.

William M. Browder, Gallion, Ala.; Jefferson Medical College of Philadelphia, 1888; formerly state senator; aged 71; died suddenly, March 21, of heart disease.

Noble Butler Parvin, Indianapolis; Jefferson Medical College of Philadelphia, 1891; aged 77; died, March 4, in the Methodist Hospital, of lobar pneumonia.

Charles W. Schaub, St. Louis; Missouri Medical College, St. Louis, 1894; member of the Missouri State Medical Association; aged 67; died, February 3.

Isidore Charles Eisenberg ● New York; University of Vermont College of Medicine, Burlington, 1891; aged 67; died, March 23, of coronary occlusion.

Benjamin Frank Ogden, Clayton, N. J.; Medico-Chirurgical College of Philadelphia, 1905; aged 55; died, April 8, of pyemia following infection of the finger.

William H. Nicholson, Henderson, N. C.; University of Maryland School of Medicine, Baltimore, 1889; aged 70; died, April 8, of chronic nephritis.

John Whitman Joslin, Johnstown, N. Y.; Albany (N. Y.) Medical College, 1891; for many years county coroner; aged 81; died, March 4, of carcinoma.

Leslie John Katonah ● Flushing, N. Y.; Deutsche Universität Medizinische Fakultät, Prague, Czechoslovakia, 1924; aged 35; died, February 22.

Joseph Francis Piotrowski, Cleveland; Ohio State University College of Homeopathic Medicine, Columbus, 1918; aged 40; died, February 1.

Alvin Charles Tanner ● Minneapolis; Rush Medical College, Chicago, 1910; aged 59; died, February 13, in the Minneapolis General Hospital.

Roy Farnsworth Huckett ● Independence, Mo.; University of Kansas School of Medicine, Kansas City, 1927; aged 32; died, February 17.

William A. Lynott, Plymouth, Pa.; Louisville (Ky.) Medical College, 1907; aged 55; died, March 28, in Scranton, of coronary sclerosis.

Charles Luther Dreese, Goshen, Ind.; Fort Wayne (Ind.) College of Medicine, 1881; aged 86; died, March 27, of cerebral hemorrhage.

Elijah P. Gibson, Louisville, Ill.; Hospital College of Medicine, Louisville, Ky., 1878; aged 84; died, March 3, of myocarditis.

Eli Elias Carlton, Ringgold, Texas; Kentucky School of Medicine, Louisville, 1897; aged 68; died, March 10, of nephritis.

George Everette Loverette, Cincinnati; Leonard Medical School, Raleigh, 1902; aged 65; died, February 8, of diabetes mellitus.

Harrison H. Norris, Whitewater, Kan.; Eclectic Medical Institute, Cincinnati, 1885; aged 73; died, March 17, of heart disease.

John Julian Paul, Georgetown, Ont., Canada; Trinity Medical College, Toronto, 1885; aged 71; died, February 19, of heart disease.

Charles Albert Milton, Dodge City, Kan.; Rush Medical College, Chicago, 1881; aged 82; died, March 2, of angina pectoris.

Raye S. Everett, Bay City, Mich.; Cleveland University of Medicine and Surgery, 1895; aged 70; died, March 9, of heart disease.

John Henry Dangerfield, Wheeling, W. Va.; Meharry Medical College, Nashville, 1925; aged 37; died, March 31, of uremia.

George E. Orth, Freeland, Mich.; Michigan College of Medicine and Surgery, Detroit, 1904; aged 59; died, February 16.

Samuel James Farrell, Holden, Alta., Canada; Trinity Medical College, Toronto, Ont., 1900; aged 68; died, January 3.

Albert Ladislaw Kiraly, Cleveland; Eclectic Medical College of the City of New York, 1902; aged 58; died, February 6.

James Thornburg Turner, La Follette, Tenn.; Tennessee Medical College, Knoxville, 1899; aged 76; died, February 13.

Michael Rokosz, Rosebud, Mo.; St. Louis College of Physicians and Surgeons, 1918; aged 43; died, in February.

Joseph O. Glenn, Stroud, Okla.; Ensworth Medical College, St. Joseph, Mo., 1882; aged 75; died, February 9.

William H. McMillan, Erin, Tenn. (licensed in Tennessee in 1889); aged 75; died recently, of bronchopneumonia.

William Collins Hanson, Auburn, Ala.; Atlanta Medical College, 1889; aged 69; died, February 4.

CORRECTION

Obituary Notice.—The statement in the obituary notice in THE JOURNAL, April 13, that Dr. Thomas Cook Stellwagen had been president of the American Association of Genito-Urinary Surgeons was erroneous. Dr. Stellwagen had not been president of this association.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Dennos Food.—Dennos Food Co., Portland, Ore. Composition: Essentially wheat flour, bran and sugar. For infant-feeding, indigestion, heart burn, flatulence, insomnia, ulcers, etc. Fraudulent therapeutic claims.—[*N. J. 21177; August, 1934.*]

Rayburn's Easy Antiseptic.—W. S. Rayburn & Sons, Chicago. Composition: Essentially petrolatum with small amounts of benzaldehyde, camphor and a coloring material. For boils, eczema, cancer, rheumatism, etc. Fraudulent therapeutic claims.—[*N. J. 21180; August, 1934.*]

Tasher's Diarrhoea Mixture.—Allied Drug Products Co., Chattanooga, Tenn. Composition: Essentially small amounts of plant drug extracts including tannin and inorganic material including an iron compound, with large amounts of glycerin and water, flavored with clove oil. Fraudulent therapeutic claims.—[*N. J. 21182; August, 1934.*]

Grimes' Ointment.—Grimes Ointment Co., Los Angeles. Composition: Essentially volatile oils including camphor, with reducing sugars such as honey, and glycerin, rosin and opium extract in an ointment base such as petrolatum and tallow. For blood poison, piles, ulcers, etc. Fraudulent therapeutic claims.—[*N. J. 21183; August, 1934.*]

Kap-Oil.—Kap Oil Co., Broken Bow, Neb. Composition: Essentially petrolatum with phenolic compounds, menthol, oil of wintergreen and a minute amount of a mydriatic alkaloid, colored with a green dye. For pneumonia, influenza, asthma, etc. Fraudulent therapeutic claims.—[*N. J. 21184; August, 1934.*]

Joy's Castoria.—Mills Sales Co., New York City. Composition: Essentially extracts of plant drugs including a laxative, with sugar, glycerin, alcohol and water. For colic, diarrhea, worms, etc. Fraudulent therapeutic claims.—[*N. J. 21186; August, 1934.*]

Witter Water.—Witter Water Co., Ukiah, Calif. Composition: In each quart, 177 grains of dissolved mineral matter consisting essentially of sodium, magnesium and calcium bicarbonates, borax, common salt and small amounts of other salts commonly present in ground water. For "acid stomach," etc. Fraudulent therapeutic claims.—[*N. J. 21188; August, 1934.*]

Thor's Vitamin Compound.—Thor Pharmacal Co., Atlanta, Ga. Composition: Tablets containing plant material including nux vomica and a laxative drug, with compounds of iron and copper, phenolphthalein and yeast. Worthless as a source of vitamin D. For "run-down" condition, etc. Fraudulent therapeutic claims.—[*N. J. 21189; August, 1934.*]

Andor' Grant Oil.—Crump Laboratories, Louisville, Ky. Composition: Essentially ammonia, oils of red pepper, cloves and eucalyptus, with camphor, traces of sodium carbonate and an iron compound, alcohol (14.9 per cent by volume) and water. For rheumatism, backache, pleurisy, etc. Fraudulent therapeutic claims.—[*N. J. 21191; August, 1934.*]

Fisher's Lung Balm and Household Ointment.—George L. Fisher, Superior, Neb. Composition: Essentially volatile oils, including eucalyptol, incorporated in petrolatum. For coughs, catarrh, croup, tonsilitis, etc. Fraudulent therapeutic claims.—[*N. J. 21193; August, 1934.*]

Normalettes.—Health Laboratories, Inc., Long Beach, Calif. Composition: Tablets containing ground plant material coated with calcium carbonate and sugar, the "Group 2 Normalettes" containing, in addition, small portions of phenolphthalein and bile salts, and the "Group 3 Normalettes" containing, in addition, a starch digestant, charcoal and baking soda. Fraudulent because the various "Groups" were represented as remedies for various diseases.—[*N. J. 21196; August, 1934.*]

Alfeo Tea.—Health Laboratories, Inc., Long Beach, Calif. Composition: Essentially milk sugar (97 per cent) and a small amount of plant material. For "normalizing the body." Fraudulent therapeutic claims.—[*N. J. 21197; August, 1934.*]

Burbank Tea (Dried Alfalfa).—California Vegetized Products Co., Burbank, Calif. Composition: Dried alfalfa. For poor blood, nervous disorders, etc. Fraudulent therapeutic claims.—[*N. J. 21199; August, 1934.*]

Antitoi.—Apex Laboratories, Inc., New York City. Composition: Essentially volatile oils (19 per cent) including menthol and lavender oils, and approximately 79 per cent of alcohol. "A vaporous inhalant." Misbranded because quantity or proportion of alcohol not declared on label.—[*N. J. 21204; August, 1934.*]

Merrell's Penetrating Oil.—Dick Dunn Drug Products Co., St. Louis. Composition: Essentially volatile oils including turpentine oil and eucalyptol. For toothache, earache, cramps, rheumatism, etc. Fraudulent therapeutic claims.—[*N. J. 21205; August, 1934.*]

Veb-i-Ana Balm.—Duke Laboratories, Dallas, Tex. Composition: Essentially petrolatum with small amounts of volatile oils, such as citronella and peppermint, and a rubefacient, such as red pepper extract. For sexual impotency. Fraudulent therapeutic claims.—[*N. J. 21206; August, 1934.*]

Bromo Paper.—Diamond Mills Paper Co., New York City. Composition: Essentially tissue paper impregnated with a small amount of mineral oil and a very small proportion of carbolic acid. For hemorrhoids. Fraudulent therapeutic claims.—[*N. J. 21208; August, 1934.*]

Eyetex.—Mills Sales Co., New York City. Composition: Essentially table salt, baking soda and borax, with small amounts of thymol, sodium benzoate, sodium salicylate and hydrastine, colored yellow. For eye disorders. Fraudulent therapeutic claims.—[*N. J. 21209; August, 1934.*]

Alberty's Calcotine.—Composition: Tablets composed essentially of milk sugar, with minute amounts of inorganic material including calcium salts, phosphate, sodium, potassium, iron, magnesium and chlorine compounds. "Tonic." Fraudulent therapeutic claims.—[*N. J. 21210; August, 1934.*]

Alberty's Lobra Organic Pellets (Formerly Liver Cell Salts).—Composition: Essentially milk sugar with minute amount of inorganic material, principally calcium salts, with traces of sodium, potassium, iron, magnesium and chlorine compounds. For malaria, biliousness, diabetes, etc. Fraudulent therapeutic claims.—[*N. J. 21210; August, 1934.*]

Catalyn.—Vitamin Products Co., Milwaukee. Composition: Essentially plant material including wheat bran, wheat starch, glandular material including epinephrine, with milk sugar. Cure-all. Fraudulent therapeutic claims.—[*N. J. 21213; August, 1934.*]

Abilene Crystals.—Abilene Co., Abilene, Kan. Composition: Essentially dried Glauber's salt with small quantities of epsom and common salt. "For radiant health . . . constipation and its resultant effects." Fraudulent therapeutic claims.—[*N. J. 21215; August, 1934.*]

Aspo Capsules.—Hance Bros. & White, Inc., Philadelphia. Composition: In each capsule a pellet containing extracts of plant drugs including aloin, and a liquid containing oils such as savin and parsley. For female disorders. Fraudulent therapeutic claims.—[*N. J. 21217; August, 1934.*]

Golden Rheumatism Remedy.—C. J. McCormick, Fort Worth, Texas. Composition: Essentially an extract of a laxative plant drug, small quantities of potassium iodide and a salicylate, with alcohol (1.9 per cent), sugar and water. Fraudulent therapeutic claims.—[*N. J. 21218; August, 1934.*]

Golden Blood Tonic.—C. J. McCormick, Fort Worth, Texas. Composition: Essentially potassium iodide, iron, strychnine, a small quantity of quinine, with such plant extracts as sarsaparilla and podophyllum and a laxative drug such as rhubarb. Fraudulent therapeutic claims.—[*N. J. 21218; August, 1934.*]

Golden Cough Compound.—C. J. McCormick, Fort Worth, Texas: Composition: Essentially tar, a trace of chloroform, alcohol (4.4 per cent) and water. Misbranded because label lacked declaration of quantity or proportion of alcohol present; also, fraudulent therapeutic claims.—[*N. J. 21218; August, 1934.*]

Golden Laxative Cold Tablets.—C. J. McCormick, Fort Worth, Texas. Composition: Essentially acetanilid, quinine sulphate (1/6 grain per tablet) and plant extracts including red pepper and a laxative. Fraudulent therapeutic claims.—[*N. J. 21218; August, 1934.*]

Alberty's Anti-Diabetic Vegetable Compound.—Alberty Food Laboratories, Hollywood, Calif. Composition: Essentially powdered plant materials. Fraudulent therapeutic claims.—[*N. J. 21220; August, 1934.*]

G. C. G. Golden Chemical Compound.—International Chemical Co., Topeka, Kan. Composition: Iron sulphate dissolved in water. For diphtheritic and scarlet fever sore throat, pyorrhea, catarrh, eczema, erysipelas, bleeding piles, etc. Fraudulent therapeutic claims.—[*N. J. 21222; August, 1934.*]

Cortisol Comp. Tablets.—Raymer Pharmacal Co., Philadelphia. For indigestion, etc. Misbranded because of fraudulent therapeutic claims and because each tablet contained less than the ½ grain of salol represented.—[*N. J. 21223; August, 1934.*]

Edrolax.—Edros Natural Products, Inc., New York. Composition: Essentially a mixture of mucilaginous seeds including psyllium, with agar-agar and caramel. For constipation, intestinal inflammation, etc. Fraudulent therapeutic claims.—[*N. J. 21226; August, 1934.*]

Wonder Crystals.—Wonder Crystals Product Co., Holdrege, Neb. Composition: Essentially crystallized Glauber's salt. Cure-all. Fraudulent therapeutic claims.—[*N. J. 21237; August, 1934.*]

Live-Ox Tonic.—Live-Ox Medicine Co., St. Louis. Composition: Essentially rhubarb extract, tar, vinegar, alcohol and sirup. For coughs, catarrh, asthma, etc. Fraudulent therapeutic claims.—[*N. J. 21227; August, 1934.*]

Burbank Kelp.—Vegetable Products Corporation, Burbank, Calif. Composition: Essentially ground seaweed. For nervousness, rheumatism, anemia, anemia and digestive troubles. Fraudulent therapeutic claims.—[*N. J. 21231; August, 1934.*]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INFECTION WITH TUBERCULOSIS

To the Editor:—Where can I get the latest information on the following questions regarding tuberculosis: 1. Does the primary infection of tuberculosis increase the immunity of an individual to further exogenous infection with the bacillus of tuberculosis? 2. What is the length of life of the bacillus of tuberculosis under different conditions, as in sunlight and in dark rooms? 3. Is there any age beyond which it is considered that an individual will not become infected with tuberculosis? Please omit name and address.

M.D., Wisconsin.

ANSWER.—1. There is good experimental evidence to show that the animal body, after having been infected with small doses of tubercle bacilli or with those of low virulence, will later tolerate large doses of tubercle bacilli longer than the animal that has not been previously infected. This greater length of life has been attributed to immunity produced by the original infection (Krause, A. K.: *J. M. Research* **38**:25 [Sept.] 1916. Willis, H. S.: *Am. Rev. Tuberc.* **17**:240 [March] 1928). From such work it was deduced that the child who became infected with tubercle bacilli, and was not ill, developed immunity to tuberculosis, and it was this immunity which accounted for the extremely low morbidity and mortality from tuberculosis in children. Recent observations have shown, however, that when these so-called immunized children approach the period of puberty, some of them fall ill from clinical tuberculosis and by the time they reach the age of 21 years approximately 10 per cent have developed tuberculosis in one of its clinical forms (Myers, J. A., and Harrington, F. E.: The Effect of Initial Tuberculous Infection on Subsequent Tuberculous Lesions, THE JOURNAL, Nov. 17, 1934, p. 1530). In all probability as many more of the group who were infected in childhood will fall ill before they have reached the average length of life of the general population. Just how many of this 10 to 20 per cent of infected children who later fall ill develop their clinical tuberculosis through exogenous reinfection is not known. The fact is well established, however, that, when tubercle bacilli escape in sufficient numbers from old primary foci and find lodgment on allergic tissues, they are capable of producing disease. There is no evidence to show that such bacilli are any more likely to cause disease than those introduced into the bodies of sensitized persons from exogenous sources. Experimental workers (Burke, H. E.: *Tr. Nat. Tuberc. A.*, 29th Annual Meeting, 1933, p. 212) have proved that immunized animals develop a destructive form of disease when tubercle bacilli are introduced from exogenous sources. Therefore the primary infection with tuberculosis may produce some immunity to tubercle bacilli either from endogenous or from exogenous sources. Unfortunately, however, one cannot depend on this immunity, since it is only the previously infected human beings, and those who should be immunized by such infection, who actually develop chronic, clinical tuberculosis.

2. The length of life of the tubercle bacillus outside the human body varies a great deal, depending on its exposure to direct sunlight. If in sputum and partially covered by dust, even though in places where there is abundant sunshine, the tubercle bacillus is adequately protected so that it may remain alive for many days. When exposed to the direct rays of the sun, cultures of tubercle bacilli are rendered sterile in approximately two hours. When sputum is spread thinly on glass, only ten minutes of direct sunlight is required to kill them. Material containing tubercle bacilli placed on linen and woolen cloth and dried have lost their ability to infect animals after twenty-four to thirty hours of exposure to daylight. When one exposes tubercle bacilli to rays from the mercury quartz vapor lamp, they lose their acid-fastness in a few minutes and are dead in ten minutes. When sputum containing tubercle bacilli is smeared thinly on cloth or glass and dried in a dim light in a cool place, they remain alive and virulent as long as four months. When bacilli are exposed to diffuse light, as in a house, they have been found virulent as long as thirty-nine days.

3. Apparently there is no age at which the individual will not become infected with tubercle bacilli. At one time it was believed that all initial infection occurred in childhood; perhaps it did. However, with the reduction in the number of sources of tubercle bacilli through pasteurization of dairy products, slaughter of tuberculous animals, isolation, treatment, and education of tuberculous human beings, the children of most communities no longer become contaminated in large numbers. In fact, there are many places in this country where from 75 to 90 per cent of the children enter the period of puberty without having been infected with tubercle bacilli. When some of these uninfected individuals later become exposed to tubercle bacilli, such as frequently occurs in students of nursing and medicine, they are seen to develop the first infection type of tuberculosis, which is not essentially different from that which they would have developed if they had been infected in infancy or childhood (Myers, J. A.: *Am. Rev. Tuberc.* **28**: 93 [July] 1933). There are cases on record of much older individuals who have become infected for the first time and who developed the characteristics of the first infection type of disease as seen in childhood. The reinfection type of tuberculosis, whether from endogenous or exogenous sources, can take place at any time in life. The best evidence to support this statement is the increased incidence of the reinfection type of tuberculosis in the human family as the decades advance; that is, in the second decade of life there is far more clinical tuberculosis than in the first, there is more in the third decade than in the second, and so on throughout the decades of life. After the age of 50, for the number of people living, the incidence of clinical tuberculosis is higher than at any other age period in life. This fact has been established not only through surveys that include x-ray films and sputum examinations but also through postmortem studies.

INJECTION TREATMENT FOR HERNIA

To the Editor:—Is the treatment of hernia by injection of sclerosing solutions a sound procedure? This matter has been recalled to my attention through the recent promotion of Pina-Mestre's Solution proposed for that purpose.

M.D., Arkansas.

ANSWER.—Pina-Mestre's Solution, manufactured by Dr. E. Pina-Mestre of Barcelona, Spain, was declared not acceptable for inclusion in New and Nonofficial Remedies (THE JOURNAL, Feb. 1, 1930, p. 399). At that time, however, it was known as Hernial (Inyecciones Proliferantes Obturadoras del Dr. E. Pina-Mestre). The formula was then stated to be as follows:

"Each ampule contains approximately 98% of alcohol and the balance consists of the following ingredients expressed in percentages: 25% Krameria, 16% Catechu, 15% Rosa Canina, 15% Rosa Centifolia, 14% Vaccinium Myrtillus, 15% Monesia."

The attempted cure of hernia by the application of John Hunter's theory of "adhesive inflammation" is not new nor original with Dr. Pina-Mestre. Injection of irritants of varying sorts into the inguinal canal was performed successfully almost a century ago by Velpeau.

The results obtained perhaps compared favorably at that time with those following surgical repair, but it must be remembered (1) that aseptic surgery was then unknown and (2) that infection of herniorrhaphy wounds predisposes greatly to recurrence. The indiscriminate spreading of severely irritant substances throughout an area containing such delicate structures as the inguinal canal with the frequent presence in the sac of intestine, omentum, bladder, ovary or other abdominal viscera is most hazardous. Once the substance is injected, its distribution is beyond control. While dense scar formation might be eminently desirable at a given site, it might be equally objectionable in another area. For example, any substance that will produce adhesions in the inguinal canal around the hernia may produce adhesions in the peritoneal cavity, which is continuous with the hernial sac. Because this procedure is advocated for office use, the occurrence of perforation of the bowel with peritonitis, of some viscus, of the deep epigastric artery (in inguinal hernia) or even of the femoral artery itself (in femoral hernia) is particularly dangerous. It would be most difficult to effect ligation of either of these vessels in the office of the general practitioner. Yet such injury would constitute an urgent surgical emergency.

It may be said that after the recognized operations for hernia the normal anatomy of the region is somewhat altered but the result is practically as satisfactory, structurally and functionally, as the normal. The results produced by sclerosing solutions injected into this area would defy prediction and would undoubtedly produce more or less distortion of all immediately adjacent structures with perhaps sterility in the male and with no assurance that the hernia would be cured or even affected.

While there would appear to be no place at all for the injection treatment, it is possible that in the case of very aged individuals, or those whose physical state would contraindicate operation, there may occur isolated instances in which an attempt at treatment of this sort might be justified if the patient fully understands the dangers. Any common irritant would undoubtedly serve as well as Pina-Mestre's Solution and at a considerable saving (the price, to physicians, of 60 cc. of the preparation is $20). It is probable though that, whenever

surgery is contraindicated, injection would also be unwise by reason of the possible occurrence of the previously noted complications, any one of which might require immediate operation on a poor-risk patient. For such individuals, a well fitted and frequently adjusted truss may prove satisfactory.

The large or unreducible hernias are the ones that are not always repaired satisfactorily, especially by the inexperienced surgeon, but these could never be safely relieved by injections.

In general, surgical repair by a well trained surgeon offers a satisfactory method for the treatment of hernia with a minimum of local tissue injury and little risk or discomfort.

TRINITROPHENOL (PICRIC ACID) METHOD FOR STAINING TUBERCLE BACILLI

To the Editor:—I would appreciate the technic of Pottenger's dilution-flotation-picric acid method for examining specimens for tubercle bacilli.

WALTER T. SWIRE, M.D., Memphis, Tenn.

ANSWER.—The Pottenger dilution—flotation—trinitrophenol (picric acid) method for examining sputum for tubercle bacilli is performed in the following manner:

1. Collect the sputum for from twenty-four to seventy-two hours.

2. Add an equal part of 0.5 per cent sodium hydroxide solution and then shake, preferably with a shaking machine, for from five to ten minutes. Shaking can also be done by hand.

3. Digest in a water bath at 55 C. for from thirty minutes to one hour.

4. Pipet off and discard any insoluble residue that has settled to the bottom of the bottle.

5. Add from 1 to 2 cc. of a hydrocarbon (xylene, ligroine, benzene or gasoline). Fill with distilled water to about 200 cc. Shake for ten minutes.

6. Allow the hydrocarbon to collect at the top of the bottle (from ten to twenty minutes).

7. If the viscosity of the specimen is too high, remove the subnatant fluid by a sterile siphon, fill to 200 cc. again with distilled water, and shake for five minutes.

8. When the viscosity is practically that of water, the supernatant hydrocarbon layer is drawn up in a sterile pipet, which is pinched by inserting a cock, and allowed to remain in the vertical position until the liquid separates from the hydrocarbon layer (from five to ten minutes). The subnatant liquid is discarded and smears are made from the hydrocarbon layer. This is put on the slide and dried layer on layer to the desired thickness.

9. Wash the smear in ether to remove traces of hydrocarbon and fat. Stain as usual. In decolorizing with acid-alcohol do not allow more than twenty seconds exposure, as bacilli decolorize rapidly. Complete the decolorizing with from 5 to 10 per cent sodium sulphite if necessary. Counterstain with 1 per cent aqueous trinitrophenol solution.

For proper films, from two to five large drops of the layer are necessary. The preparations are thin and clean and do not peel. Some rare purulent sputums require a dilution of 1 to 100 or more before the hydrocarbon layer forms distinctly.

The foregoing method attempts to break up all clumps of bacilli so that they are distributed equally and singly throughout the specimen, and then concentrated in a small quantity. Thus they are much more apt to be found.

Whereas the ordinary technic of staining smears of sputum is positive only with 100,000 or more bacilli per cubic centimeter (Dr. H. J. Corper), this method is said to demonstrate tubercle bacilli in numbers as low as 1,000 in a twenty-four hour quantity of sputum. The method is about 200 times as sensitive as the ordinary sputum smear technic. It is about as accurate as guinea-pig inoculation and can be carried out in about two hours. From 200 to 500 bacilli per cubic centimeter can be detected after a ten minute search of the smear.

URETHRITIS AND VESICULITIS AFTER GONORRHEA

To the Editor:—Give treatment for a chronic, though mild, posterior urethritis and seminal vesiculitis following gonorrhea about five years before. It is stated by some that if the vesiculitis can be cured the posterior urethritis will cure spontaneously; others state that if the urethritis is cured the cure of the vesiculitis will follow of itself. Which view is correct, or are both statements correct? Please omit name and address.

M.D., Texas.

ANSWER.—The recognized treatment of chronic prostatitis and seminal vesiculitis following gonorrhea is routine massage of these organs and instillation of a mild solution (from 0.5 to 1 per cent) of silver nitrate. At the present time some are making direct injection of certain chemicals into the gland either transurethrally or transrectally. This method is still in the experimental state. There is no reason to believe the correctness of the statement "It is stated by some that if the vesiculitis can be cured the posterior urethritis will cure spontaneously; others state that if the urethritis is cured the cure of the vesiculitis will follow of itself."

SARCOMA OF ILEUM

To the Editor:—Would you please tell me the frequency of sarcoma of the ileum, particularly the terminal ileum. I have a case now in which I operated ten days ago for an acute surgical condition of the abdomen and found a large tumor of the terminal ileum, which had broken through and formed a large colonic abscess outside the bowel. I resected and the report from the pathologist came back "intermediate spindle cell sarcoma." The patient did not have a symptom until two days before the operation. Are these cases frequent? Have you any statistics on this condition? What is the precentage of recurrence? Please omit name.

M.D., Tennessee.

ANSWER.—Sarcoma of the terminal ileum is an uncommon condition. On account of the uncertainty as to the precise histology and histogenesis of these lesions, the literature on this subject is indefinite. It is not clear from many of the reports in the literature as to whether one is dealing with lymphosarcoma, spindle cell sarcoma or myxosarcoma. Lymphosarcoma is the most common of the three. The myxosarcomas in this region usually arise in the submucosa of the appendix and cecum and frequently give rise to the clinical picture of acute appendicitis. Goldstein reports statistics from Prague in which thirteen intestinal sarcomas were observed over a period of fifteen years among 13,036 necropsies, representing an incidence of 0.1 per cent. The same author was able to collect 627 cases of intestinal sarcoma in the world literature. Three per cent located in the appendix. Spindle cell sarcomas constitute about 13 per cent of all types of intestinal sarcoma. Rankin states that patients operated on for intestinal sarcoma generally die within the first year, although occasionally the disease can be controlled and some five-year cures are recorded.

EPIDIDYMITIS

To the Editor:—What part does trauma play in the production of acute epididymitis in a person who gives no history of a gonorrheal infection either recently or in the past? Is acute epididymitis ever metastatic to a colibacillary, staphylococcic, streptococcic or pneumococcic infection? How frequently is tuberculosis the cause of an acute epididymitis in which there is no history of gonorrhea or trauma, and is it possible in such a case that one of the organisms named could be the cause of the epididymitis instead of tuberculosis? Please omit name and address in answer.

M.D., Pennsylvania.

ANSWER.—Trauma may be the exciting cause of an acute nongonorrheal epididymitis in a person who gives no history of a gonorrheal infection. There are many infections of the epididymis, however, which are due to other organs and which reach the epididymis by extension along the vas deferens from the prostate and seminal vesicles. Acute epididymitis may be the site of a metastatic infection in a colibacillary, staphylococcic, streptococcic or pneumococcic infection, but if this occurs it is usually part of a general sepsis due to these organisms. Acute epididymitis may occur in tuberculosis of the epididymis and when it does it is usually an acute process engrafted on a preexisting tuberculosis: in other words, another example of a mixed infection. Any of the organisms named may cause this complication.

EFFECTS OF REMOVAL OF PROSTATE AND SEMINAL VESICLES

To the Editor:—Will you please tell me the indications for and results from the removal of the prostate and seminal vesicles in a man aged 35? Is this ordinarily considered a formidable procedure, and what would be the effects on the sex life of the individual? Please omit name and address.

M.D., Connecticut.

ANSWER.—The only indication for this radical operation in a man aged 35 would be tuberculosis, and it is quite likely that a large percentage of good surgeons and urologists would not be inclined to do it. It is indeed a formidable procedure, involving extensive dissection through the perineum. Young has devised an operation covering this procedure. The entire set of organs can be removed without opening the urinary tract.

The first effect on the patient would be to diminish considerably the seminal ejaculate, as the secretions from the prostate and vesicles would be absent; the psychic effect might be slight or considerable, depending on the personal equation and his reaction to the surgical procedure; sexual ability might be altered slightly or greatly, again depending on the individual. Young says the operation is not dangerous to life, even when nephrectomy is also necessary.

NO MEDICAL TREATMENT OF CATARACT

To the Editor:—At the age of 64, an opacity of the lens is forming in one of my eyes and has been under observation for a year or more, making slow progress. An ophthalmologist has urged during this period daily use of a solution of ethylmorphine hydrochloride in water, one or two drops in the eye nightly. He does not promise anything more than a hope that it will prove efficacious in clearing up the opacity but urges its continuance. I find that the slight inflammation of the conjunctiva that it causes is, I think, sufficient to make the instillation of the drug hardly worth while unless there is good reason to believe that good will result. I may say that I have but one eye with which I can read and, unfortunately, the opacity has affected that eye. One or two other ophthalmologists that I have asked about this seem to consider the use of ethylmorphine hydrochloride or glycerin in boric acid solution of very questionable value and I should much like to know what the consensus of competent authorities—if there is any general agreement in the matter—is with regard to this. I do not question the competence of the ophthalmologist but, in view of the rather serious nature of the trouble and the not altogether pleasant nature of the irritation set up by the drug, I should like to know what confidence in it other ophthalmologists have. Please omit name and address if published in THE JOURNAL.

M.D., New York.

ANSWER.—For the past few years a committee from the Section on Ophthalmology of the American Medical Association, headed by Dr. Allen Greenwood of Boston, has been investigating the so-called medical treatment of cataract. The conclusion of the committee is that there is no known medical treatment that is of proved value. Individual ophthalmologists have reported cure or arrest of cataract with this, that or the other local or systemic treatment, but none of these reports have been substantiated by others. In general, it is not considered that the opacity of a lens can be influenced by the use of medicaments in the conjunctival sac.

THERAPEUTICS OF CASCARA

To the Editor:—1. Is the best method of taking cascara sagrada regularly that of using small doses three times a day after eating? 2. Is there any harm in taking five drops of the bitter tincture of cascara in this manner over a period of years (provided a patient is satisfied with this form of laxative and refuses to change)? What ill effects might be expected? 3. Is there any therapeutic advantage of the aromatic tincture of cascara over the bitter? Please omit name and address.

M.D., Pennsylvania.

ANSWER.—1. When cascara sagrada is taken regularly for the purpose of increasing the irritability of the bowel, it is better given three times daily half an hour before meals than after meals, as it will then have an opportunity to act in greater concentration than when mixed and diluted with the large bulk of stomach contents after a meal.

2. The constant taking of any stimulant is theoretically objectionable on the ground of habituation and the consequent necessity of progressive increase of dosage. In practice this does not always happen. It is nevertheless well to attempt gradual and progressive reduction of dose. If this is impossible beyond a certain point, taking recourse to alternation with a succedaneum, such as aloe, is advisable.

3. The aromatic fluidextract of cascara sagrada is much more palatable than the bitter fluidextract. Unfortunately, it is also less efficient, possibly in a 1:4 ratio.

NODULES ON JOINTS

To the Editor:—I have under my care a man, weighing about 200 pounds (90 Kg.), with hard nodular muscles on the extensive surfaces of the elbows and knees. These vary in size up to as much as a centimeter in diameter. They are somewhat tender and painful on pressure. His physical examination is negative, including a complete blood picture, urine analysis, and examination of the teeth. The family history is negative. He is employed as a filling station attendant. Ordinary treatment has failed to give him any relief. Can you suggest a diagnosis and treatment?

M.D., Ohio.

ANSWER.—A macular formation is never nodular, having only two dimensions, so the query probably refers to a nodular formation. Nodules in the region of the knees and elbows may be due to various causes. Syphilis seems to have been ruled out in this case by negative blood examination. Certain arthritic conditions or gout may produce extra-articular nodules. Xanthomas are not always confined to tendons and their sheaths and may occur as extra-articular nodules. In rare instances, calcium is deposited in the superficial structures; but roentgen examination will disclose such formations. The most certain way to clear the diagnosis would be to perform a biopsy, removing one of the nodules and having it examined by a pathologist. Treatment must necessarily be based on the etiology.

SENSITIVITY TO MORPHINE—INDICATION FOR PITRESSIN

To the Editor:—When a patient seems to be sensitive to morphine sulphate, as evidenced by itching after a dose is given, and is sensitive to barbiturates, just what drug or combination of drugs can be given for postoperative relief of pain? Also, what contraindications are there for the use of pitressin postoperatively for gas distention, especially in appendectomies? Please omit name.

M.D., Iowa.

ANSWER.—Codeine might be tolerated, as well as acetanilid and acetylsalicylic acid. A combination of these three drugs as in the following prescription might be synergistic:

℞ Codeine phosphate ..... 0.50 Gm.
Acetanilid ..... 1.00 Gm.
Acetylsalicylic acid ..... 4.00 Gm.
M. and divide into fifteen capsules.
Label: One every hour until relieved or until three are taken, then every two to four hours as required.

Pituitary might be of value in certain cases of adynamic ileus. It is contraindicated in intestinal obstruction, threatened perforation, or the presence of a thin-walled intraperitoneal abscess.

PSORIASIS AND URINARY CALCULUS

To the Editor:—I have a patient who suffers from psoriasis and who passed a ureteral calculus about one year ago. Is there any connection between the two ailments? Will you outline the present preventive measures to combat the recurrence of the calculus with emphasis on the diet? Kindly omit name.

M.D., Connecticut.

ANSWER.—In all probability there is no connection between psoriasis and the development of stone in the urinary tract. The best preventive measures against recurrent calculus formation are:

1. The correction of any obstruction that may prevent good drainage from any part of the urinary tract.
2. Clearing up any infection.
3. Forcing of fluids.
4. Elimination of all foci of infection.

SPASMODIC TORTICOLLIS

To the Editor:—A man, aged 42, who has been employed as a laborer in an ice-making plant for four years, developed a spasmodic torticollis. Can the daily exposure of cold—zero temperature—be explained as causal in possibly producing this condition? Please omit name.

M.D., Illinois.

ANSWER.—True spasmodic torticollis is characterized by clonic spasm of the various muscles of the neck, especially the sternomastoid and trapezius. The cause is some lesion of the nervous supply of the muscles, probably in most cases cortical. We have found no instance in which daily exposure to cold was considered an etiologic factor in producing this condition. Acute wry neck or rheumatic torticollis may be produced in susceptible individuals as the result of exposure to a cold draft of air.

VASECTOMY

To the Editor:—In vasectomy should either or both ends of the cut vas be ligated and why? Please give accepted technic for the operation. Please omit name.

M.D., Colorado.

ANSWER.—In carrying out a vasectomy, both ends of the cut vas should be ligated, the lower end because testicular secretion would continue to be discharged from it and the upper end because it communicates directly with seminal vesicle and prostate and, should local infection occur, it might easily be carried to these organs. Again, if the ends are not tied they may grow together again.

Technic: Under infiltration anesthesia a small incision (1.5 cm. in length) is made in the upper posterolateral wall of the scrotum, exposing the vas. Its sheaths are dissected from it, a small section is removed and the cut ends are ligated and dropped back into the scrotum and the skin wound closed with one or two silk sutures.

ATROPINE IN COUGHS

To the Editor:—I have been prescribing atropine sulphate in cases of chronic coughs in doses of 1/200 grain (0.00065 Gm.) once or twice a day. I also use it in cases of nervousness. Is the drug habit forming? Would there be any untoward effects in using it over months—daily?

ALFRED JEPPESON, M.D., Omaha.

ANSWER.—Atropine sulphate is not known to be habit forming and if it gives relief there is no objection to continuing it as long as desirable.

Medical Examinations and Licensure

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral (Group A and Group B candidates).* New York, June 10. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Final oral and clinical examination (Group A and Group B candidates).* Atlantic City, N. J., June 10-11. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 8, and New York, June 10. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 10, and St. Louis, Nov. 19. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 7-8. Sec., Dr. Walter Freeman, 1726 Eye St. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: San Francisco, May 10-12, and Atlantic City, N. J., June 8-10. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

ARIZONA: *Basic Sciences.* Tucson, June 18. Sec. Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson.

ARKANSAS: *Basic Sciences.* Little Rock, May 6. Sec., Mr. Louis E. Geboury, 701 Main St., Little Rock. *Regular.* Little Rock, May 14. Sec., Dr. A. S. Hamilton, Prescott. *Eclectic.* Little Rock, May 14. Sec., Dr. L. B. Marshall, 320 W. 14th St., Little Rock.

CALIFORNIA: *Reciprocity.* San Francisco, May 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

DELAWARE: June 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

FLORIDA: Jacksonville, June 17-18. Sec., Dr. William M. Roulett, P. O. Box 786, Tampa.

GEORGIA: Atlanta and Augusta, June 11-12. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, Room 5 State House Annex, Indianapolis.

IOWA: Iowa City, June 4-6. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 18-19. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 5-7. Sec., State Board of Health, Dr. A. T. McCormack, 532 Main St., Louisville.

MARYLAND: *Regular.* Baltimore, June 18-21. Sec., Dr. John T. O'Mara, 1211 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 11-12. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor, June 11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MISSOURI: St. Louis, June 12-14. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examination will be held in all centers where there are Class A medical schools and five or more candidates desiring to take the examination, June 24-26 and Sept. 16-18. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: *Basic Science.* Omaha, May 7-8. *Medical.* Omaha, June 11-12. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 6. Sec., Dr. Edward E. Hamer, Carson City.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NORTH CAROLINA: Raleigh, June 10. Sec., Dr. Benj. J. Lawrence, 503 Professional Bldg., Raleigh.

OHIO: Columbus, June 4-7. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 5-6. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

OREGON: *Basic Science.* Portland, May 18. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

TEXAS: Austin, June 18-20. Sec., Dr. T. J. Crouse, 918-19-20 Mercantile Bldg., Dallas.

VIRGINIA: Richmond, June 19-21. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: *Basic Science.* Milwaukee, June 1. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

WYOMING: Cheyenne, May 20. Act. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

Illinois January Examination

The Illinois Department of Registration and Education reports the written and practical examination held in Chicago, Jan. 22-24, 1935. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Fifty candidates were examined, 49 of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Chicago Medical School	(1933) 77, (1934) 77, 80, 80, 84, 85, (1935) 77, 79, 79*	(1932)	81,
Loyola University School of Medicine		(1934)	85, 86, 87
Northwestern University Medical School	85, 85, 86, 86,* 87, 89	(1934)	82,
Rush Medical College	82,* 83, 84, 85, 85,* 86, 88, 89, 89	(1934)	81,
School of Medicine of the Division of the Biological Sciences		(1932)	85, (1934) 80, 83
University of Illinois College of Medicine	(1934) 78, 80, 81, 82, 82, 83, 83, 83, 83,* 84, 84, 84,* 89	(1933)	80,†
Harvard University Medical School		(1933)	89
University of Minnesota Medical School		(1933)	83

School	FAILED	Year Grad.
Creighton University School of Medicine		(1933)

Twenty-nine physicians passed the practical examination held in Chicago, January 24, for reciprocity and endorsement applicants. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
Yale University School of Medicine		(1928)	Maryland
Howard University College of Medicine	(1933) Kansas	(1921)*	D. C.,
Rush Medical College		(1930),* (1932)	Minnesota,
	(1934)* Pennsylvania		
University of Illinois College of Medicine		(1934)*	Indiana, Michigan
Indiana University School of Medicine		(1931),* (1932)*	Indiana
College of Physicians and Surgeons of Baltimore		(1914)	Ohio
Johns Hopkins University School of Medicine		(1931)	Maryland
University of Michigan Medical School	(1932), (1933)* Michigan	(1927),	
University of Minnesota Medical School		(1929), (1931)	Minnesota
St. Louis University School of Medicine		(1929)	Penna.
Creighton University School of Medicine		(1933)	Nebraska
University of Nebraska College of Medicine		(1928)	Nebraska
Western Reserve University School of Medicine		(1927),*	Ohio
University of Oklahoma School of Medicine		(1932)*	Penna.

School	PASSED	Year Grad.	Endorsement of
Loyola University School of Medicine		(1934)	N.B.M.Ex.
Northwestern University Medical School	(1934), (1934)* N. B. M. Ex.	(1931),	
Harvard University Medical School		(1931),* (1933)*	N.B.M.Ex.
St. Louis University School of Medicine		(1927)	N.B.M.Ex.

* License has not been issued.

† This applicant has completed the four year medical course and will receive the M.D. degree on completion of internship.

Book Notices

The Problem of Mental Disorder: A Study Undertaken by the Committee on Psychiatric Investigations, National Research Council. Members of the Committee: Madison Bentley, Chairman, Sage Professor of Psychology, Cornell University, and E. V. Cowdry, Professor of Cytology, Washington University. This study was supported by a grant from the Carnegie Corporation. Cloth. Price, $4. Pp. 388. New York & London: McGraw-Hill Book Company, Inc., 1934.

Knowledge of mental disorders is extremely imperfect and the treatment of those who have mental disorders is correspondingly unsatisfactory. The authors attempt to take stock of the usable knowledge actually at hand and to discover how well the wide field of science, divested of professional and philosophic tradition, may supply new knowledge and new instruments of research. Five psychiatric points of view are presented by representative men in the various schools and branches of psychiatry: the clinical, the medical, the neurologic, the psychobiologic and the psychoanalytic. The supporting sciences, to which the editors look with hope, are surveyed under the titles: problems in cerebral anatomy and physiology; electrophysiology of the brain; electrical measurement of activities in nerve and muscle; neurocytology; certain aspects of the chemistry and metabolism of the brain; neuropathology of the brain; the origin, plan and operational modes of the nervous system; factors of neural integration and neural disorder; general biology and genetics; human constitution; endocrinology; the pathogenesis of neurocytotropic virus diseases; nutrition; pharmacology; general and experimental psychology; clinical psychology and the psychoneuroses; comparative psychopathology of infrahuman primates; psychotic symptoms and social backgrounds; cultural anthropology, and education. The volume is thus a collection of some twenty-five essays by so many authors. The plan of presenting the problem is commendable but almost too large for inclusion in a single volume, and the reader is annoyed by the sudden shifts, starts and stops; for there is lacking the cohesion necessary to supply anything like unity. The style is spotty. A few of the essays are maimed by the weight of the thoughts or the ponderosity of the diction, it is difficult to say which. The brevity of the more excellent essays is disappointing and frequently the stimulus to collateral reading is deflected by the absence of references. All told, there is much extremely valuable information, enough to make one humble, and a little to make one hopeful. The book, if read in its entirety, will be appreciated.

The Popular Practice of Fraud. By T. Swann Harding. Cloth. Price, $2.50. Pp. 376. New York, London & Toronto: Longmans, Green & Company, 1935.

This book of Mr. Harding's covers much the same field as, and is a foil for, "100,000,000 Guinea Pigs" by Kallet and Schlink of Consumers' Research. The authors of both books are about as highly critical of the medical profession as they are of each other. Mr. Harding, in another place, has expressed the opinion that the American Medical Association is "not a scientific body, but a well-unionized trade guild determined to protect its own incompetent members and to increase the income of its supporters." While in his present book Mr. Harding is not quite so virulent against the American Medical Association, nevertheless this book, like "100,000,000 Guinea Pigs," details innumerable frauds, practically all of them of a medical character, and the material is based almost exclusively on the investigations made, paid for and published by the much dedamned American Medical Association!

"The Popular Practice of Fraud" is a book of 376 pages whose material could easily have been brought within the scope of 100 pages. It is endlessly repetitious. There is no index —which might have made it a convenient book of reference— and one wonders if the omission is intentional; certainly an index would have emphasized its repetitious character. Each chapter contains many bibliographic references which the careless reader may not turn to. Such references, being designated simply by numbers in the body of the text, fail to bring home to the casual reader how impossible it would have been for Mr. Harding to write his book had the American Medical Association not done the enormous amount of work on medical frauds that it has in the past thirty years.

Unlike Messrs. Kallet and Schlink, Mr. Harding does not criticize the federal officials whose duty it is to protect the public against fraud in medical and other fields. For this he is to be complimented, for the tirades against the Food and Drug Administration officials in "100,000,000 Guinea Pigs" were as undeserved as they were unfair.

Here and there Mr. Harding gives qualified and begrudging praise to the American Medical Association and its work. After criticizing the Council on Pharmacy and Chemistry for accepting certain products—which, as further knowledge was developed, the Council later rejected—Mr. Harding says: "It is not contended that the Council can always be right. It is merely claimed that it operates under the somewhat onerous handicap of a considerable economic bias." Elsewhere he says, in dealing with the same general subject: "In general, acceptance by the councils of the American Medical Association is on a basis of scientific merit. There are notable and inexcusable exceptions, but no such agency, Government or otherwise, can be perfect so long as human nature remains about what it is."

Toward the exploiters of the various frauds with which he deals, Mr. Harding's attitude is one of tolerance. He is apparently convinced that these persons are more sinned against than sinning and that their defections are due not so much to guile as to an imperfect economic system. This system, he says, "is subject periodically to catastrophic crises which render so many individuals and businesses insecure that fraud increases by leaps and bounds as efforts are made to survive the depression." He has no suggestion for another system and, indeed, questions whether it would not be a fact that "any other seemingly ideal system would almost certainly be accompanied by its own peculiar kind of imperfections."

In the closing chapter, entitled "The Future of Fraud," he states that "ruthless producers compete for suckers in a closed market, attacking with all the modern weapons of psychology, a public that completely lacks the elements of intelligent sales resistance." He then gives as an instance the case of "Listerine," and points out that the president of the Lambert Pharmacal Company has explained that when his company spent practically nothing for advertising, it earned only $115,000 annually, but that when, in 1930, it spent approximately $5,000,000 in advertising, its net earnings, after paying taxes, were considerably over $7,000,000. Mr. Harding refers further to the various advertising claims made for Listerine as an alleged panacea for dandruff, halitosis and what-have-you, and closes his references to this product by stating that when the Listerine people decided to put out a tooth paste under the same name, the Listerine flavor had to be changed because the public would not accept it. Mr. Harding's reaction to the Listerine exploitation is: "There is nothing heinous about it at all. The Company was merely doing what it felt compelled to do in a closely competitive profit economy where the public must be sold ever more goods. The selling is somewhat easier if people can be induced to believe that they are ill or that they can be protected from serious ailments by certain simple proprietaries."

We would not imply that the present book is not a valuable one. It is. Like Kallet and Schlink's "100,000,000 Guinea Pigs," it contains much valuable information and, being written in an easy, racy style, will do much to awaken that large part of the public that Mr. Harding says "completely lacks the elements of intelligent sales resistance." And such an awakening is sadly needed. The pity is that the author, while finding the medical profession so necessary for furnishing him with most of the scientific data that his book contains, should feel constrained to belabor that profession so drastically. We believe that even Mr. Harding would admit that no other social group in the American scene has made such efforts to protect the public against fraud as is comparable with the work carried out at the expense of the organized medical profession of the United States in the medical field. Moreover, any honest judge of the medical profession of this country would admit that no other articulate group has ever been more critical of its own shortcomings or more ready to admit error when error has been committed.

Lehrbuch der Urologie und der chirurgischen Krankheiten der männlichen Geschlechtsorgane. Von Professor Dr. Hans Wildbolz, chirurgischer Chefarzt am Inselspital in Bern. Second edition. Paper. Price, 64 marks. Pp. 645, with 218 illustrations. Berlin: Julius Springer, 1934.

This excellent work first appeared in 1924; after ten years it has been brought down to date in the present edition. Urology, always in evolution, is here presented in its latest aspect. The author, with the authority which his long and extensive experience gives him, has depicted his subject in a fully rounded and complete manner. As in the previous edition, the divisions of the volume are devoted to general and special urologic subjects. Extensive attention has been paid to methods of examination, but for the most part the author omits theoretical discussions in order to make his treatise a practical work for the specialist as well as for the general practitioner. As a surgeon he was writing especially for surgeons, however, quite properly, a chapter on nephritis has been included. A discussion of gonorrhea and nongonorrheal urethritis also is noted. Wildbolz has merely touched on the new technic of transurethral prostatic resection. His own technic of perineal prostatectomy is fully described. The volume is clearly and coherently written and contains nothing but matter of importance. The references to the work of others are scanty and brief, but from the author's own rich fund of experience ample data are brought forth. The volume is well edited and beautifully printed. The illustrations are satisfactory. It can be recommended heartily as one of the best books on the subject in any language.

Anatomy for Dental Students: Systemic and Practical. By Six Teachers. Edited by E. P. Stibbe, F.R.C.S., Senior Demonstrator in Anatomy, London Hospital Medical School. Cloth. Price, $4. Pp. 429, with 246 illustrations. Baltimore: William Wood & Company, 1934.

The character of this book is clearly expressed in the first two sentences of the preface: "The purpose of this book is to present to dental students and practitioners as much of the subject of human anatomy as is necessary for their licentiate examinations and for reference after qualifying. It is often found impracticable in medical schools to provide completely separate courses for dental students in the ancillary subjects, with the result that it is necessary for them laboriously to abstract from lectures and books those parts of the subject that are necessary to them; and even then they cannot be quite confident that they have covered just the right ground." This frankly puts the book on the basis of a quiz compend to enable the student, with the least effort and the least profit, to encounter successfully licensing examinations. This point of view is of questionable soundness. If a dental student should study fundamental medical sciences at all, he should study them

from exactly the same point of view as the medical student. If a dentist is responsible for the diseases of the mouth, as an internist is responsible for the diseases of the liver, he requires the same basic training. The text covers well the limited scope of the book. Osteology is confined to the skull, the vertebral column and the bones of the limbs. One might ask at once "Why the bones of the limbs?" The study of joints is limited to the temporomandibular joint, the joints of the cervical spine and the joints of the clavicle. The only justification for this choice must be that the licensing examination in England is limited to these. The text is clearly written and, in view of its limitations, quite satisfactory. The author follows the classic error in describing the anterior belly of the digastric as the depressor of the mandible. The book is a limited presentation of a great subject from a limited point of view. For ready reference it is probably of considerable value.

Oto-rhino-laryngologie du médecin praticien. Par le Dr. Georges Laurens, oto-rhino-laryngologiste de l'Hôpital Saint-Joseph. Sixth edition. Paper. Price, 42 francs. Pp. 533, with 287 illustrations. Paris: Masson & Cie. 1934.

This is everything that a textbook for students and practitioners should be. The author never loses sight of the fact that he is not talking to the specialist. His attitude is that of the teacher who realizes that his reader wants facts, and these he presents clearly and graphically. He takes nothing for granted but goes into minute details bearing on the fundamentals. The drawings accompanying the text cover every essential point from the manipulation of the head mirror to the minutiae of therapeutic procedures. A wealth of information is compressed within the pages in such a manner that the reader must be impressed with what the author believes he should know. Among the topics that are ordinarily given but little space in the average manual one finds deafness, tinnitus, vertigo, otalgia, epistaxis, differential diagnosis of dyspnea, tracheotomy, vaccine therapy, dysphagia, and differential diagnosis of ulcerative lesions of the throat. The only criticism that might be offered is the omission of such topics as neutropenia and mononucleosis, petrositis and the use of contrast mediums in the diagnosis of sinus disease. The inclusion of these would have made the volume practically perfect.

The Adolescent in the Family: A Study of Personality Development in the Home Environment. Report of the Subcommittee on the Function of Home Activities in the Education of the Child. E. W. Burgess, Ph.D., Chairman. White House Conference on Child Health and Protection. Cloth. Price, $3. Pp. 673. New York & London: D. Appleton-Century Company, 1934.

Unlike many committee reports, this is not only a valuable collection of actual material but a readable report. Many of the facts established by the extensive surveys on which the report is based were known or generally suspected, but it is worth while to have them thus substantiated and assembled for the information of those whose work brings them in contact, and not infrequently in conflict, with the adolescent. On the whole, the American home seems not to deserve the severe condemnation so often meted out to it; on the other hand, there are many ways in which it could be bettered. Perhaps the most interesting of the conclusions from the report is the one which shows that the rural home, though externally appearing most solidly self contained, may in fact be less so than the city home which superficially gives the impression of being little if at all integrated, as far as family life is concerned. The home seems to be of value to the adolescent practically without regard to its socio-economic status; the deciding factors appear to be human relationships within the home. Neither does it appear that the only child, as commonly believed, necessarily suffers in personality development solely by reason of being the only child; quite the contrary may be the result. It all depends on the parents. The section of the report dealing with health is the least satisfactory. The authors, in every section but this one, have shown a commendable caution about letting their conclusions run away with their data; but when it comes to health, they naively present unverified data collected from children, about the frequency of bathing and of brushing the teeth, and ask the reader to accept them as criteria of the general health situation in the homes. An attempt is made to show a correlation between regularity in brushing the teeth and personality adjustment, which would seem to be carrying the fetish of health habits to a new high in ridiculousness. The section on health is so out of harmony with the general excellence of the book as a whole that one is tempted to do a little correlating of one's own and note that only two physicians were members of the subcommittee that sponsors this study. With this one exception, however, and in spite of it, the book should be valuable to all who work with the adolescent —teachers, parents, social workers, ministers and leaders in youth movements. The recommendations of the subcommittee will be difficult to carry out, embodying as they do a number of suggestions for more parent education with respect to management of the child, and especially with respect to sex education, which is pointed out as the most glaring weakness of the modern American home.

La viruela y su profilaxis en Guatemala. Apuntes compiladas por el Doctor Luis Galtan, para presentarlos al segundo Congreso Centroamericano de Ciencias Médicas, que se reunira en San José de Costa Rica, en el mes de octubre de 1934. Paper. Pp. 60, with illustrations. Guatemala, C. A., 1934.

Severe epidemics of variola have been recorded in medical annals of Guatemala during the last 300 years. From 1879 to 1881 smallpox swept over the entire republic, and in 1883 obligatory vaccination for all inhabitants of Guatemala was decreed. Vaccination is under the control of a sanitary commission. Since the institution of vaccination, the morbidity and mortality rate has decreased constantly and consistently. At the present time variola occurs only in sporadic form, and the actual number of persons suffering from this dread disease is small. These experiences are quite like those of other countries where widespread vaccination is the rule.

Miscellany

THE PRACTITIONER'S RESPONSIBILITY WHEN FUGITIVES ATTEMPT TO CONCEAL IDENTITY BY MEANS OF SURGERY

J. EDGAR HOOVER
Director, Federal Bureau of Investigation, U. S. Department of Justice
WASHINGTON, D. C.

A postmortem examination of the body of John Dillinger disclosed that efforts had been made to alter the pattern appearing on the bulbs of his fingers, and that operations had been performed on his face in an effort to obscure his identity. That the effort to alter his facial appearance had proved unsuccessful was demonstrated when special agents of the Federal Bureau of Investigation, United States Department of Justice, recognized him instantly and brought his career to a close on encountering armed resistance from him at Chicago on July 22, 1934. That the attempt to mutilate his fingerprints was equally unsuccessful was shown by the fact that the bureau's fingerprint experts found 300 characteristics remaining in these patterns whereby Dillinger's identity could be conclusively established.

The attempts of Dillinger and other fugitives to change their fingerprints were occasioned by the knowledge that as long as telltale patterns remained on the tips of their fingers they could not hope to avoid the consequences of prior acts merely by adopting new aliases and changing their bases of operation. They realized that, no matter where they fled, the files of the Federal Bureau of Investigation would pursue them. How potent a force these files are may be judged by the fact that they contain almost 5,000,000 fingerprint records contributed by approximately 8,000 police agencies. An average of 2,800 fingerprint cards are added daily, almost half being of individuals shown by the records to have had a previous criminal history.

As a result of the increased use of fingerprint identification in the last decade, fugitives who in an earlier era, after arrest on suspicion, might have been released because of the inability of the authorities to establish their true identity are now held

and turned over to the jurisdiction where they are wanted. Obviously, if some method could be devised whereby criminals could frustrate fingerprint evidence, they would subscribe to it eagerly.

It is not surprising, therefore, that criminals seek to enlist the aid of members of the medical profession whose knowledge and skill might enable them to obscure fingerprints and alter facial appearance. Although the attempt failed in Dillinger's case, and the physician who performed the operations was prosecuted, there is little reason to believe that the criminal element will relinquish the hope of utilizing the services of physicians and surgeons to conceal their identity.

Just what are a criminal's chances of successfully obliterating his identity through a resort to surgery? In the case of fingerprint mutilation, while there may exist some difference of opinion as to the extent of the scars left as a result of such operations, the consensus of surgical experts seems to be that there would be definite delineations in all cases. It is also evident that, when skin from other portions of the body is grafted to the finger tips, the ridge formations are different from those which customarily appear on the bulbs. The discovery by a police official of such a distinctly abnormal pattern would instantly place the official on guard, and whether he could effect an immediate identification or not there is no doubt that the prisoner would be held in custody pending the determination of his identity.

The same consequences could be expected from burning or mangling the fingerprints. Of course, if the burns were less than third degree, the pattern temporarily effaced would again push itself to the surface. Assuming that rigorous treatment had destroyed all prints, the prisoner would invite the unremitting activity of police officials to determine who he was. In short, to tamper with the natural ridge formations of the finger tips would merely serve to obstruct and not to defeat identification.

No legitimate purpose can be imagined to account for a patient's application to a surgeon to have his fingerprints changed. To a law-abiding citizen it is a matter of indifference what pattern his prints follow. It is apparent, therefore, that the practitioner who undertakes to alter fingerprint patterns is lending himself to an attempt to defeat justice and violating the high ethical standards of the profession.

The position of the plastic surgeon consulted for changes in facial characteristics is somewhat different, in view of the fact that the patient may well be actuated by proper motives. The urge to improve on nature's handiwork is a common one, and many an upright citizen has been driven by the jeers of his fellow men to resort to surgery in the hope of achieving a more pleasing physiognomy. And whereas there is futility in fingerprint distortion, plastic surgery is capable of a marked degree of success in changing an individual's appearance, notwithstanding the failure of Dillinger's surgeon.

The resort to plastic surgery by the criminal element has, however, imposed definite responsibilities on the profession. With due consideration for the confidential relationship between doctor and patient, the surgeon should not permit himself to be used to further the ulterior motives of criminals seeking to evade apprehension. It has become increasingly incumbent on the plastic surgeon to scrutinize carefully the motives of patients in consulting him. The slight additional burden which this may impose is greatly outweighed by the public interest involved. And if the surgeon experiences the slightest misgiving in a specific instance, he should not become a party to the operation. Certainly, persons having legitimate motives for resorting to plastic surgery will not be greatly inconvenienced in properly identifying themselves.

It is of course evident that the most skilled and ethical practitioners will not further the aims of the criminal element. Unfortunately, every profession has within it individuals who do not do credit to it and with whom the ethical members of the profession are at war. In any case falling within the jurisdiction of the Federal Bureau of Investigation, it promises full cooperation with the efforts of the medical profession to maintain high standards and will conduct vigorous investigation with the view to the prosecution of irresponsible practitioners who have assisted in altering the appearance of patients whose fugitive status is apparent.

Medicolegal

Contracts in Restraint of Medical Practice.—The defendant sold to the plaintiff all of his office equipment, medical business and fixtures, including the good will of the business, and agreed that he would not for a period of five years thereafter open offices within the counties of Sutter or Yuba, California, for general or special practice of medicine or surgery. Within the time limit named, the defendant did open an office in the city of Marysville, county of Sutter, for the practice of medicine and surgery. In this action, the plaintiff sought to restrain the defendant from continuing in his practice contrary to his agreement. The trial court gave judgment for the plaintiff, and the defendant appealed to the district court of appeal, third district, California.

The defendant admitted all the allegations of the complaint but claimed that his agreement not to practice was void under section 1673 of the Code of California. That section, and section 1674, pertain to contracts in restraint of trade, and read as follows:

> 1673. Every contract by which any one is restrained from exercising a lawful profession, trade, or business of any kind, otherwise than is provided by the next two sections, is to that extent void.
>
> 1674. One who sells a good-will of a business may agree with the buyer to refrain from carrying on a similar business within a specified county, city, or a part thereof, so long as the buyer, or any person deriving title to the good-will from him, carries on a like business therein.

The defendant conceded that the word "business" in a general sense is broad enough to include any activity for profit or gain and therefore would include a profession, but contended that the legislature in stating the general rule in section 1673, *supra*, referred to "profession, trade, or business," whereas the exception as set forth in section 1674, *supra*, deliberately limited its effect to "business." However, said the district court of appeal, the Supreme Court of California in the case of *Ragsdale* v. *Nagle*, 106 Calif. 332, 39 P. 628, had the very same question before it and there held adversely to the defendant's contention. The court in that case said:

> Section 1674 of the Civil Code says that one who sells the good will of a "business" may agree with the buyer to refrain from carrying on a similar "business." It is now claimed that abstracting is not a business, but a profession or trade; and that, therefore, the provisions of the Code do not apply to the present case. It is sufficient to say the section is broad enough to bring the present case within its scope.

On the authority of the Ragsdale case, the district court of appeal affirmed the judgment in favor of the plaintiff.—*Crutchett v. Lawton (Calif.), 33 P. (2d) 839.*

Workmen's Compensation Acts: Gonorrheal Ophthalmia Not Compensable.—The defendant in error, Elizabeth Hosafros, was employed in a cigar factory. She contracted gonorrheal ophthalmia, necessitating the removal of an eye. She attributed the infection to certain rags furnished by the employer, which were used by employees to wipe their hands and faces. After the industrial commission had denied her claim for compensation, she filed suit in the court of common pleas, where a verdict was rendered in her favor. The industrial commission carried the case to the court of appeals of Ohio, Hancock county.

There is no evidence, said the court, of any traumatic injury sustained by the employee. The undisputed testimony was to the effect that gonorrheal infection of the character under consideration is transmitted by direct contact of the secretion containing the germs with the mucous membrane of the eye. There

was no evidence that such infection is occasioned by or follows as a result of physical injury. As the disease from which the employee suffered was not occasioned by, or followed as a result of, a physical injury, it was not an injury within the meaning of the term as used in the workmen's compensation act of Ohio. Even if the infection had constituted an injury within the meaning of the compensation act, continued the court, the evidence failed to show that the employee contracted gonorrhea in the course of her employment. The evidence did show that the employee was not infected with gonococci elsewhere than in the eye. The court of appeals, therefore, held that the employee was not entitled to participate in the workmen's compensation fund, and the judgment of the trial court was reversed and judgment for the industrial commission entered.—*Industrial Commission of Ohio v. Hossfros (Ohio), 191 N. E. 832.*

Harrison Narcotic Act: Administration of Narcotics as Constituting a Sale.—The defendant-physician was indicted for a violation of the Harrison Narcotic Act, to which indictment he demurred. In overruling the demurrer, the United States district court, W. D. Washington, N. D., stated that from the facts incorporated in the indictment, which facts were not set forth in the printed report of the case, the conclusion was inevitable that the relationship between the defendant and the recipient of the morphine was essentially that of seller and buyer rather than physician and patient. The recipient of the morphine procured and intended to procure that narcotic rather than the services of a physician, and, although the defendant was a physician, he, not in the course of his professional practice nor in good faith nor for legitimate medicinal purposes, dispensed the morphine rather than legitimate professional services to the recipient. The indictment, continued the court, negatived the fact that the recipient may have been a patient of the defendant-physician in the ordinary course of his medical practice. It was morphine that the recipient wanted and that the defendant was willing to dispense, rather than medical or professional attendance. Even though the morphine was in liquid form and its possession was changed from the defendant to the recipient by means of a hypodermic, it was none the less morphine that the defendant was delivering and the recipient was receiving, rather than essentially professional services. This transaction, concluded the court, comprised all essentials of a "sale" of the morphine.—*United States v. Ratigan, 7 Fed. Supp. 491.*

Society Proceedings

COMING MEETINGS

American Medical Association, Atlantic City, N. J., June 10-14. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Academy of Pediatrics, New York, June 7-8. Dr. Clifford G. Grulee, 636 Church Street, Evanston, Ill., Secretary.

American Association for the Study and Control of Rheumatic Diseases, Atlantic City, N. J., June 10. Dr. Loring T. Swaim, 372 Marlborough Street, Boston, Secretary.

American Association for Thoracic Surgery, New York, June 3-5. Dr. Dorr S. Allen, 3720 Washington Boulevard, St. Louis, Secretary.

American Association of Genito-Urinary Surgeons, White Sulphur Springs, W. Va., June 6-8. Dr. Henry L. Sanford, 1621 Euclid Avenue, Cleveland, Secretary.

American Association of Medical Milk Commissions, Atlantic City, N. J., June 10-11. Dr. Harris Mosk, 360 Park Place, Brooklyn, N. Y., Secretary.

American Association of the History of Medicine, Atlantic City, N. J., May 6. Dr. Edward J. G. Beardsley, 1919 Spruce Street, Philadelphia, Secretary.

American Bronchoscopic Society, Toronto, Canada, June 1. Dr. Lyman Richards, 319 Longwood Drive, Boston, Secretary.

American Child Health Association, Iowa City, June 19-22. Dr. Philip Van Ingen, 30 West 50th Street, New York, Secretary.

American Federation of Organizations for the Hard of Hearing, Cincinnati, June 2-6. Miss Betty C. Wright, 1601 35th Street N.W., Washington, D. C., Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Russell S. Boles, 1901 Walnut Street, Philadelphia, Secretary.

American Gynecological Society, Hot Springs, Va., May 27-29. Dr. Otto H. Schwarz, 630 South Kingshighway Boulevard, St. Louis, Secretary.

American Heart Association, Atlantic City, N. J., June 11. Dr. Irl C. Riggin, 50 West 50th Street, New York, Executive Secretary.

American Laryngological Association, Toronto, Canada, May 29-31. Dr. William V. Mullin, 2020 East 93d Street, Cleveland, Secretary.

American Laryngological, Rhinological and Otological Society, Toronto, Canada, June 3-5. Dr. Robert L. Loughran, Sharon, Conn., Secretary.

American Neurological Association, Montreal, Canada, June 3-5. Dr. Henry Alsop Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. J. Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary.

American Orthopedic Association, Philadelphia, June 5-8. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.

American Otological Society, Toronto, Canada, May 27-29. Dr. Thomas J. Harris, 104 East 40th Street, New York, Secretary.

American Physiotherapy Association, Atlantic City, N. J., June 11-12. Miss Louise Jetter, 17 East Styles Avenue, Collingswood, N. J., Secretary.

American Proctologic Society, Atlantic City, N. J., June 10-11. Dr. Frank G. Runyeon, 1361 Perkiomen Avenue, Reading, Pa., Secretary.

American Psychiatric Association, Washington, D. C., May 13-17. Dr. William C. Sandy, State Education Building, Harrisburg, Pa., Secretary.

American Radium Society, Atlantic City, N. J., June 10-11. Dr. Edward H. Skinner, 1103 Grand Avenue, Kansas City, Mo., Secretary.

American Society for Clinical Investigation, Atlantic City, May 6. Dr. H. L. Blumgart, 330 Brookline Avenue, Boston, Secretary.

American Society of Clinical Pathologists, Atlantic City, N. J., June 7-9. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, Boston, June 6-8. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Atlantic City, N. J., June 7-8. Dr. Oscar B. Hunter, 1835 Eye Street N.W., Washington, D. C., Secretary.

American Urological Association, San Francisco, June 25-28. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 10-12. Dr. F. H. McMechan, 310 Hotel Westlake, Rocky River, Ohio, Secretary.

Association for Research in Ophthalmology, Atlantic City, N. J., June 11. Dr. Conrad Berens, 35 East 70th Street, New York, Secretary.

Association for the Study of Allergy, Atlantic City, N. J., June 10-11. Dr. Warren T. Vaughan, 808 Professional Building, Richmond, Va., Secretary.

Association for the Study of Internal Secretions, Atlantic City, N. J., June 10-11. Dr. F. M. Pottenger, 1214 Wilshire Boulevard, Los Angeles, Secretary.

Association of American Physicians, Atlantic City, May 7-8. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, Yosemite, May 13-16. Dr. F. C. Warnshuis, 450 Sutter Street, San Francisco, Secretary.

Conference of State and Provincial Health Authorities of North America, Atlantic City, N. J., June 15. Dr. A. J. Chesley, State Department of Health, St. Paul, Secretary.

Connecticut State Medical Society, New Haven, May 22-23. Dr. C. W. Comfort Jr., 27 Elm Street, New Haven, Secretary.

Florida Medical Association, Ocala, May 13-15. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.

Georgia Medical Association of, Atlanta, May 7-10. Dr. Allen H. Bunce, 139 Forrest Avenue N.E., Atlanta, Secretary.

Illinois State Medical Society, Rockford, May 21-23. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Davenport, May 8-10. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Salina, May 8-10. Mr. Clarence Munns, Stormont Building, Topeka, Executive Secretary.

Maine Medical Association, York Harbor, June 23-25. Miss Rebekah Gardner, 22 Arsenal Street, Portland, Secretary.

Massachusetts Medical Society, Boston, June 3-5. Dr. Alexander S. Begg, 8 The Fenway, Boston, Acting Secretary.

Medical Library Association, Rochester, N. Y., June 17-19. Miss Frances N. A. Whitman, 25 Shattuck Street, Boston, Secretary.

Medical Women's National Association, Atlantic City, N. J., June 9-11. Dr. Alice I. Conklin, 55 East Washington Street, Chicago, Secretary.

Minnesota State Medical Association, Minneapolis, June 24-26. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

Mississippi State Medical Association, Biloxi, May 14-16. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.

Missouri State Medical Association, Excelsior Springs, May 6-9. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.

National Association of Private Psychiatric Hospitals, Washington, D. C., June 1. Dr. James M. O'Neill, St. Vincent's Retreat, Harrison, N. Y., Secretary.

National Tuberculosis Association, Saranac Lake, N. Y., June 24-27. Dr. Charles J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

Nebraska State Medical Association, Omaha, May 14-16. Dr. R. B. Adams, Center-McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 7-8. Dr. Carleton B. Metcalf, 5 South State Street, Concord, Secretary.

New Mexico Medical Society, Albuquerque, May 22-24. Dr. L. B. Cohenour, 219 West Central Avenue, Albuquerque, Secretary.

New York, Medical Society of the State of, Albany, May 13-15. Dr. Daniel S. Dougherty, 2 East 103d Street, New York, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, May 6-8. Dr. L. B. McBrayer, Southern Pines, Secretary.

North Dakota State Medical Association, Minot, May 27-28. Dr. Albert W. Sheldery, 20½ Broadway, Fargo, Secretary.

Oklahoma State Medical Association, Oklahoma City, May 13-15. Dr. L. S. Willour, 203 Ainsworth Building, McAlester, Secretary.

Pacific Northwest Medical Association, Spokane, Wash., June 27-29. Dr. C. W. Countryman, 407 Riverside Avenue, Spokane, Wash., Secretary.

Rhode Island Medical Society, Providence, June 6. Dr. J. W. Leech, 167 Angell Street, Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., June 10-11. Dr. W. C. Spain, 116 East 53d Street, New York, Secretary.

Society of Surgeons of New Jersey, Atlantic City, May 15. Dr. Walter B. Mount, 21 Plymouth Street, Montclair, Secretary.

South Dakota State Medical Association, Pierre, May 13-15. Dr. John F. D. Cook, Langford, Secretary.

Texas, State Medical Association of, Dallas, May 13-16. Dr. Holman Taylor, 208 Medical Arts Building, Fort Worth, Secretary.

West Virginia State Medical Association, Wheeling, May 6-8. Mr. Jay W. Savage, Public Library Building, Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

10: 287-424 (Feb.) 1935

Localization of Cardiac Infarcts According to Component Ventricular Muscles. Jane Sands Robb, J. G. F. Hiss and R. C. Robb, Syracuse, N. Y.—p. 287.

Nonpenetrating Wounds of Heart: Clinical and Experimental Study. E. F. Bright and C. S. Beck, Cleveland.—p. 293.

Mechanism of Pain Production in Angina Pectoris. L. N. Katz, Chicago.—p. 322.

*Pathology of Coronary Sclerosis. T. Leary, Boston.—p. 328.

Coronary Spasm as Possible Factor in Producing Sudden Death. T. Leary, Boston.—p. 338.

*Inversion of T Wave in Lead I or II of Electrocardiogram in Young Individuals with Neurocirculatory Asthenia, with Thyrotoxicosis, in Relation to Certain Infections and Following Paroxysmal Ventricular Tachycardia. A. Graybiel and P. D. White, Boston.—p. 345.

Arteriolar Lesions of Skeletal Muscle in Hypertension. R. W. Scott, D. P. Seecof and A. A. Hill, Cleveland.—p. 355.

*Circulatory Studies on Case of Arteriovenous Aneurysm. J. McGuire, Cincinnati.—p. 360.

Clinical and Pathologic Study of Coronary Sclerosis: Its Incidence in Hypertension and Angina Pectoris. F. R. Nuzum, A. H. Elliot and R. D. Evans, Santa Barbara, Calif.—p. 367.

Congenital Complete Heart Block with Labile Ventricular Rate: Case. H. D. Levine, Boston.—p. 376.

Pathology of Coronary Sclerosis.—Leary selected the material for his investigation from early lesions or from patients who had "dropped dead." This has permitted the study of the primary process uncomplicated by secondary reactions. The studies demonstrate that the standard lesion in coronary sclerosis is atherosclerosis and that the lesions arise from the entrance of lipoids into the subendothelial layer of the intima and their phagocytosis by cells that the author refers to as lipoid cells. In the young the presence of these lipoid cells stimulates growth of fibrous tissue. As a result, the standard picture in coronary disease in the young is fibrosis narrowing the lumen of the artery. Death is usually due to thrombosis. In the old the presence of lipoid cells does not stimulate fibrosis. The cells accumulate in large masses, the nutrition of which becomes inadequate. Necrosis and autolysis result in liquefaction of the cell masses, and atheromatous "abscesses" result. Death is usually due to the rupture of an atheromatous "abscess" into the lumen. It is possible to reproduce the lesions of coronary sclerosis in experimental animals by feeding the lipoid cholesterol, which makes up most of the lipoid contents of atherosclerotic lesions. The lesions, natural and experimental, are primarily intimal and lipoid. Lesions of the elastica and media are secondary. Inflammatory reactions are late phenomena following necrosis and are not an essential part of the picture. Atherosclerosis is a disease due to disturbances in the cholesterol metabolism and belongs with the other metabolic diseases, diabetes (carbohydrates), gout (purines) and obesity (fats).

Inversion of the T Wave.—In the course of routine electrocardiography, Graybiel and White occasionally observed inversion of the T wave in leads I or II of the electrocardiogram in persons who had shown no other clear evidence of heart disease. Because inversion of the T wave has been closely associated with serious myocardial disease, any exceptions deserve attention. Observations on neurocirculatory asthenia, a syndrome in which significant inversion of the T wave has not been reported heretofore, are described by the authors. The group consists of seven patients, three men and four women, with an average age of 24½ years. In not a single case was organic disease of any description found on repeated examination. The chief subjective symptoms were similar in all patients and were induced by abnormally small effort. All complained of palpitation, six were easily fatigued, five complained of dyspnea and five suffered pain or ache in the region of the heart. All but two complained of nervousness; dizziness, faintness and excessive sweating were less common complaints. The size of the heart was not abnormal in a single instance. Heart rates were uniformly rapid and averaged 112 in the initial electrocardiograms. Murmurs were not heard in four, and an inconsequential systolic murmur was detected in three. The blood pressures of the patients were normal, as were the Wassermann reactions and basal metabolic rate determinations. At the time of the initial examination the electrocardiogram in each instance showed an upright T wave in lead I and an inverted T wave in leads II and III. No other electrocardiographic abnormalities were found. At the time of the last examination one patient was entirely well; five showed improvement, while one remained unchanged. None had developed organic disease, and the cardiac manifestations as observed clinically were not significantly altered except for the slower rates. Final electrocardiograms showed an upright T wave in leads I and II and an inverted T wave in lead III in each instance. This change in lead II was not associated with significant changes in the P or QRS waves. The heart rates, measured from the electrocardiograms, varied from 75 to 100, and the average was now 88. The authors also present four cases of thyrotoxicosis, five of infection, two of paroxysmal ventricular tachycardia and five miscellaneous cases in which an inversion of the T wave was observed but was not associated with usual known causes.

Circulatory Studies of Arteriovenous Aneurysm.—McGuire points out that the establishment of a large arteriovenous communication between the popliteal artery and vein in a healthy young man was accompanied by (1) an increase in systolic and a decrease in diastolic blood pressure levels, (2) cardiac and aortic dilatation and the symptoms of myocardial insufficiency, (3) dilatation and atrophy of the artery proximal to the arteriovenous communication and hypertrophy of the vein in the area contiguous to the fistula, an arterial aneurysm opposite the fistula, and (4) evidence of peripheral vascular malnutrition below the fistula; i. e., edema, ulceration of the skin, superficial varicosities, decrease in surface temperature and decreased pulsation of the dorsalis pedis and posterior tibial arteries. Digital occlusion of the fistulous communication produced (1) bradycardia and an immediate elevation of the diastolic and systolic arterial pressure, (2) definite elevation of the systemic venous pressure, i. e., antecubital vein, and (3) slight decrease in the size of the heart as seen fluoroscopically. Operative extirpation of the arteriovenous fistula caused (1) the disappearance of symptoms of myocardial insufficiency, (2) a marked decrease in the size of the heart, (3) after the initial rise a gradual drop in the systolic and a permanent rise in the diastolic arterial blood pressure to normal levels, and (4) diminution of peripheral edema in the affected leg, healing of the ulcers on the leg and the appearance of adequate arterial circulation in the foot.

American J. Digestive Diseases and Nutrition, Chicago

1: 829-906 (Feb.) 1935

Anemia Following Operations on the Stomach. H. R. Hartman and G. B. Eusterman, Rochester, Minn.—p. 829.

Results of Fat Tolerance Tests and Blood Sugar Estimations Performed on Patients Affected with Peptic Ulcer: Discussion of Factors Possible in Etiology of Peptic Ulcer. M. A. Schnitker and E. S. Emery Jr., Boston.—p. 834.

An Instance of Gelatinous Carcinoma of Duodenum. J. A. Wilson and J. F. Noble, St. Paul.—p. 840.

Applied Physiology of Gastro-Intestinal Innervation: Certain Selected Topics. A. C. Ivy, Chicago.—p. 845.

Effect of Mechanical Stimulation of Duodenum, Colon and Stomach on Cerebral Circulation and Intracranial Pressure. J. Vandelah and L. A. Crandall Jr., Chicago.—p. 853.

Growth of Diabetic Children. H. J. John, Cleveland.—p. 855.

Nutritional and Digestive System Aspects of Pernicious Anemia: Part I. L. G. Zerfas, Indianapolis, and B. S. Cornell, Fort Wayne, Ind. —p. 857.

Medical Aspects of Peptic Ulcer, with Especial Reference to Diagnosis and Treatment. A. F. Chace, New York.—p. 866.

Diseases of the Pancreas, Especially Acute Pancreatitis and Its Treatment. J. Douglas, New York.—p. 871.

Malignancies of the Colon, with Especial Reference to Those of the Rectal Zone. J. F. Erdmann, New York.—p. 881.

American J. Obstetrics and Gynecology, St. Louis

29: 155-308 (Feb.) 1935

*New Active Principle in Ergot and Its Effect on Uterine Motility: Preliminary Report. M. E. Davis, F. L. Adair, G. Rogers, M. S. Kharasch and R. R. Legault, Chicago.—p. 155.
*Consideration of Surgical Menopause After Hysterectomy and Occurrence of Cancer in Stump Following Subtotal Hysterectomy. N. R. Kretzschmar and S. Gardiner, Ann Arbor, Mich.—p. 168.
Coexistence of Uterine Myoma and Fundal Carcinoma. E. J. Oesterlin and R. S. Cron, Milwaukee.—p. 176.
*Amenorrhea Associated with Bilateral Polycystic Ovaries. I. F. Stein and M. L. Leventhal, Chicago.—p. 181.
Outcome of Pregnancy Complicated by Uterine Fibromyoma. R. D. Mussey and R. S. Hardwick, Rochester, Minn.—p. 192.
Use of Lutein Hormone, Progestin, in Threatened and Habitual Abortion. L. Krohn, F. H. Falls and J. E. Lackner, Chicago.—p. 198.
Study of Nembutal and Scopolamine for Relief of Pain in Five Hundred Deliveries. C. E. Galloway and P. H. Smith, Evanston, Ill.—p. 207.
Foot Drop Complicating the Puerperium. H. S. Morgan and J. E. M. Thomson, Lincoln, Neb.—p. 216.
Colpocleisis in Treatment of Uterine and Vaginal Prolapse. W. Rubovits and S. Litt, Chicago.—p. 222.
Third Stage of Labor: Relationship of Blood Loss to Preceding Labor Pains. L. A. Calkins, Kansas City, Kan.—p. 231.
Value and Limitation of Roentgen Rays in Obstetrics. J. R. Reinberger and P. B. Russel Jr., Memphis, Tenn.—p. 235.
"Parametrial Fixation" (Manchester Operation) for Prolapse of Uterus. R. T. Frank, New York.—p. 240.
Correlation of Uterine and Ovarian Cycles. Olive Sweezy, Berkeley, Calif.—p. 246.
Split Pelvis in Pregnancy. L. L. Mackenzie, New York.—p. 255.
Suppurative Mastitis as Complication of Pregnancy and Puerperium. A. L. Dippel, Baltimore, and R. A. Johnston, Houston, Texas.—p. 258.
Dystocia Following Intra-Uterine Use of Radium. H. F. Kane, Washington, D. C.—p. 264.
Abnormal Development of Vagina and Genito-Urinary Tract. J. L. McKelvey and J. S. Baxter, Baltimore.—p. 267.
*Ergot and Ergotamine Tartrate in Puerperal Prophylaxis. M. G. Der Bruche, Brooklyn.—p. 272.
Dystocia Due to Dilatation of Fetal Urinary Bladder. J. E. Savage, Baltimore.—p. 276.
Ruptured Pregnancy in Closed Rudimentary Horn of a Bicornate Uterus: External Migrations of Spermatozoon: Urinary Suppression Following Transfusion. C. A. Gordon, Brooklyn.—p. 279.
Vaginitis Emphysematosa. C. J. Marshall and V. W. Bergstrom, Binghamton, N. Y.—p. 282.
Uterus Bicornis Unicollis: Hematometra in One Horn. A. Jacoby, New York.—p. 286.
Device for Rupture of Membranes. I. G. Wiltrout, Oslo, Minn.—p. 288.

New Active Principle in Ergot.—Believing the commonly accepted idea that the physiologic activity of ergot resided in its alkaloids, Davis and his associates further separated the crude extract into an alkaloidal and a nonalkaloidal fraction. The residue that was almost free of alkaloids was exceedingly active when tested on the human uterus. The new active principle in its present form is agreeable and palatable. The dose is exceedingly small and may be dissolved in 3 cc. or less of fluid. It produces no gastro-intestinal or other undesirable symptoms in doses several times that required. It does not affect the pulse or blood pressure. When given orally, the response is usually obtained in from six to fifteen minutes. Thus far the new principle has been tested on more than 100 postpartum patients in whom kymographic tracings of uterine activity were made for a period of three or four hours. The uterine motility initiated persists for three or four hours. It is characterized by marked and persistent uterine tone and frequent uterine contractions. The curve is one that may be characterized as a good ergot reaction. The usual methods of biologic assay were used to control the physiologic activity present in the new active principle. The best method of biologic assay for this new active principle is on the human postpartum uterus and on the postpartum uterus of the dog. The method of inserting a hydrostatic rubber bag for the study of uterine motility is entirely feasible in both cases.

Surgical Menopause After Hysterectomy.—From a review of 2,042 hysterectomies of various types, Kretzschmar and Gardiner observed that hysterectomy with ovarian conservation in women 36 years of age or less was followed by menopausal symptoms before 40 years of age in 57.5 and 58.3 per cent for subtotal and total hysterectomy, respectively. The greater delay in the occurrence of hot flashes after subtotal hysterectomy would suggest some endocrine function for the retained uterine tissue. Their study indicates that complete removal of all ovarian tissue hastens the onset but does not shorten the duration of symptoms of the surgical menopause. The high incidence of menopausal symptoms following operations for pelvic inflammation would suggest that conservatism in this condition is unwise, if ovarian tissue showing degenerative changes is to be retained. The onset of the surgical menopause should not presuppose a decrease in or cessation of sexual activity, since 57 per cent of the patients who developed hot flashes showed either an increase or no change in their libido. A review of 1,022 patients with cervical cancer indicates that the condition occurs in the cervical stump after subtotal hysterectomy for benign causes in 1.76 per cent of cases. In 416 patients with previous subtotal hysterectomy who replied to a questionnaire, one proved case of cervical cancer and five probable cases were found, an incidence of 1.44 per cent.

Amenorrhea Associated with Polycystic Ovaries.—Stein and Leventhal report seven cases in which amenorrhea was associated with the presence of bilateral polycystic ovaries. Bilateral polycystic ovaries are most likely the result of hormone influences and not of inflammatory change. The diagnosis of ovarian pathologic changes is greatly facilitated by the use of pneumoroentgenography. The treatment of the amenorrhea with estrogenic hormone proved unsatisfactory. Surgical treatment, consisting of wedge resection of the cystic cortex of the ovaries, was successful in completely restoring physiologic function. Menstruation in every instance became normal and remained so during the period of observation. Pregnancy followed in two instances. It is the authors' belief that a mechanical crowding of the cortex by the cysts interferes with the progress of the normal graafian follicles to the surface of the ovary. This mechanical factor may account for the symptoms of amenorrhea and sterility. Recurrence of the polycystic change in the ovary was not found in the follow-up examinations of any of the patients.

Ergot and Ergotamine Tartrate in Puerperal Prophylaxis.—In a series of 169 consecutive parturients delivered under the same conditions, Der Brucke found that many had a mild elevation of temperature, not high enough to be put in the accepted morbidity group yet of sufficient persistence to make one realize that all was not quite well. In the group with the greatest number of cases of elevated temperature (53.15 per cent, the control group), lochia rubra persisted beyond normal duration, there was some form of lochia present at the time of discharge, and involution had not progressed as well in the multiparas as in the primiparas. The administration of ergot and more particularly its alkaloid, ergotamine tartrate, prophylactically, hastened involution, lessened lochia rubra and checked lochial discharge by the tenth day.

American Journal of Public Health, New York

29: 109-238 (Feb.) 1935

Value of the Fluoroscope in Pulmonary Tuberculosis Case Finding. H. H. Fellows, New York.—p. 109.
Diphtheria Immunization Campaign in Austria. G. Pöch and C. N. Leach, New York.—p. 113.
Experiences with Sewage Farming in Southwest United States: Texas. V. M. Ehlers, Austin, Texas.—p. 119.
Id.: Arizona. F. C. Roberts Jr., Phoenix, Ariz.—p. 122.
Id.: California. E. A. Reinke, Berkeley, Calif.—p. 126.
Treatment and Disposal of Sewage in the National Parks. H. B. Hommon, San Francisco.—p. 128.
Significance of Bacteriologic Methods in Diagnosis and Control of Whooping Cough. Pearl Kendrick and Grace Eldering, Grand Rapids, Mich.—p. 147.
Some Factors in Epidemiology of Malaria. H. Hanson, M. F. Boyd and T. H. D. Griffitts, Jacksonville, Fla.—p. 156.
Study of Diphtheria Immunization in Preschool Children in Assumption Parish, La., Five Year Period 1929 to 1933. P. M. Payne, Napoleonville, La.—p. 162.
Control of Processing of Canned Foods in California. J. R. Esty, San Francisco.—p. 165.
Experiments on Purification of Creamery and Packing House Wastes. M. Levine, Ames, Iowa.—p. 171.
Nutritional Survey of Forty-Five Hundred Children on Relief. J. C. Geiger and P. S. Barrett, San Francisco.—p. 183.
City Health Department Clinics: Activities of Public Health Nurses in Case Finding and Case Holding in Relation to Syphilis. Rachel K. Miller, Oakland, Calif.—p. 192.
Nutrition and Health and Price of Milk. J. A. Tobey, New York.—p. 197.
Pipets for Use in Routine Sterility Tests. W. E. Bunney, Lansing, Mich.—p. 207.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

33: 149-292 (Feb.) 1935

Preoperative Irradiation of Cortical Renal Tumors. C. A. Waters, Baltimore.—p. 149.

Historical and Practical Consideration of Pyelographic Mediums. A. E. Goldstein and B. S. Abeshouse Baltimore.—p. 165.

Aneurysm of Renal Artery: Case Report. M. B. Wesson and C. C. Fulmer, San Francisco.—p. 176.

*Roentgenologic Study of Pulmonary Ventilation: Method for Prediction of Normal Pulmonary Capacities Based on Roentgen Measurements. W. W. Fray, Rochester, N. Y.—p. 179.

Tuberculous Lung Following Thoracoplasty from Roentgenographic Standpoint. W. R. Oechsli, Olive View, Calif.—p. 191.

Study of Rapid Cholecystography. T.-S. Jung, Peiping, China, and S. Moore, St. Louis.—p. 194.

Coincident Scirrhous Lesions of Stomach and Colon: Report of Cases. M. L. Sussman, New York.—p. 205.

Subluxation of Apophyseal Articulations with Bony Impingement as Cause of Back Pain. L. A. Hadley, Syracuse, N. Y.—p. 209.

Further Observations on Roentgen Treatment of Pituitary Tumors. G. E. Pfahler and E. W. Speckman, Philadelphia.—p. 214.

Factors Influencing Decomposition of Iodides by Roentgen and Gamma Rays. Helen Quincy Woodard, New York.—p. 227.

Relation Between Roentgen and Erythema Dose. C. C. Lauritsen, Pasadena, Calif.—p. 235.

The Radiologist and the Hospital. G. W. Grier, Pittsburgh.—p. 237.

Roentgen Study of Pulmonary Ventilation.—Since Fray wished to correlate the dimensions of the lung fields with the clinical determinations of pulmonary capacity requiring maximal ventilatory response of the individual, he selected maximal expiration and inspiration as the most desirable phases of respiration for roentgen study. He found a high degree of correlation between the area of the lung fields at maximal inspiration and the vital capacity of a person. This correlation has been improved by the use of the quantity "roentgenologic chest volume," which is obtained by multiplying the area of the lung fields at maximal inspiration by the thickness of the chest obtained by external measurements. Since the percental relationships of the subdivisions of the total capacity are constant, the normal values of all the capacities may be predicted for any subject through the use of a regression formula. Comparison of the observed values of pulmonary capacity and its subdivisions with the predicted gives a reliable index of the degree of impairment in pulmonary ventilation, the total variation in normal cases being less than 15 per cent. A fairly constant ratio has been found between the area of the lung field at maximal expiration and the area at maximal inspiration in normal persons. Restricted chest expansion is indicated by ratios varying by more than 7 per cent (men). These correlative tests have been found to be of value in differentiating those with disturbed pulmonary ventilation from the normal group.

Archives of Internal Medicine, Chicago

55: 173-348 (Feb.) 1935

*Relationship Between Rheumatic and Subacute Bacterial Endocarditis. W. C. Von Glahn and A. M. Pappenheimer, New York.—p. 173.

*Sternal Marrow Aspirated During Life: Cytology in Health and in Disease. R. H. Young, Chicago, and E. E. Osgood, Portland, Ore. —p. 186.

Effect of Light Muscular Training on Patients with Heart Disease: Rheumatic Heart Disease: Changes at Rest and During Exercise. S. H. Proger and C. Korth, Boston.—p. 204.

Copper and Iron in Human Blood. A. Sachs, V. E. Levine, Omaha, and A. A. Fabian, New York.—p. 227.

*Reaction (p_H) and Carbon Dioxide Content of Venous Plasma in Pernicious Anemia. C. P. Emerson Jr. and O. M. Helmer, Indianapolis. —p. 254.

Diets Low in Calories Containing Varying Amounts of Protein: Their Effect on Loss in Weight and on Metabolic Rate in Obese Patients. R. W. Keeton and Dorothy Dickson Bone, Chicago.—p. 262.

Peptic Ulcer: Nature and Treatment Based on Study of Fourteen Hundred and Thirty-Five Cases. E. S. Emery Jr. and R. T. Monroe, Boston.—p. 271.

Transverse Diameter of Heart in Patients with Hypertension, with Clinical Measurements Checked by Postmortem Studies. F. R. Nuzum and A. H. Elliot, Santa Barbara, Calif.—p. 293.

Relationship Between Rheumatic and Subacute Bacterial Endocarditis.—Von Glahn and Pappenheimer express the view that, in persons who have had rheumatism, active rheumatic vegetations are a necessary and practically constant prerequisite for the implantation of the bacteria. They base this conclusion on the following evidence: 1. Vegetations histologically identical with those in rheumatic endocarditis and not containing bacteria are found (1) on the same valve as the bacterial vegetations, (2) on other valves on which there are no vegetations containing bacteria and (3) on the auricular wall. 2. Aschoff bodies in the myocardium that are taken to indicate active rheumatic disease are found in practically the same proportion of cases of subacute bacterial endocarditis as of uncomplicated rheumatic cardiac disease. 3. Types of bacterial endocarditis other than that due to nonhemolytic streptococci may be engrafted on active rheumatic vegetations. This is a cogent argument against the view that the two types of lesions are a response of different intensity to the same infective agent, unless current views as to the histologic specificity of the rheumatic reaction are dispensed with. The authors do not claim that all cases of bacterial infection of the valves are the result of implantation on unhealed rheumatic lesions nor do they wish to deny the possibility that infection of the valve in cases of general sepsis may occur through the blood vessels of the valves. They have in their records several cases in which an acute interstitial valvulitis was unaccompanied by vegetations, indicating that the infection had reached the substance of the valve through the coronary circulation.

Sternal Marrow Aspirated During Life.—Using a technic similar to Arinkin's, Young and Osgood studied the marrow of twenty-eight healthy men and twenty-six patients. With the patient lying on his back, with his chest elevated by a pillow beneath his shoulders, the region of the sternomanubrial junction is prepared with iodine and alcohol. The skin, the subcutaneous tissues and the periosteum of the region are infiltrated with procaine hydrochloride. With an 18 gage spinal puncture needle from 3 to 4 cm. in length, the sternomanubrial junction is entered in the midline at an angle of about 60 degrees to the surface of the chest. The needle is depressed to an angle of about 30 degrees and is forced not more than 1.5 cm. into the marrow cavity of the body of the sternum. If much resistance is encountered, the needle is rotated while pressure is maintained to facilitate penetration. The stylet is then removed and, with a 2 cc. Luer syringe, 1 or 2 cc. of marrow is aspirated. If no marrow appears after strong aspiration, the stylet is replaced, the needle is inserted a little deeper and aspiration is done. The aspirated material, which looks like blood, is transferred into a 4 by ½ inch (10 by 1.25 cm.) test tube containing from 2 to 4 mg. of powdered potassium oxalate and shaken well to ensure mixing. The stylet is then replaced, the needle is withdrawn and the puncture wound is sealed with collodion. The oxalated marrow can be used for any type of hematologic examination that can be done on oxalated blood. Differential, peroxidase and reticulocyte counts were made on the oxalated marrow and on oxalated venous blood taken at about the same time. The results of the studies of the venous blood and sternal marrow of twenty-eight healthy male medical students show that the range of variation in the differential cell counts of the marrow was little greater than that of the blood. The results of studies of the marrow and blood in twenty-six cases representing fifteen different disorders of the blood and blood-forming organs are summarized. Study of the sternal marrow established the diagnosis of aplastic anemia and subleukemic monocytic leukemia, and it aided in the differential diagnosis of Banti's disease from Gaucher's disease, of anemia of congenital syphilis from aplastic anemia and aleukemic leukemia, and of multiple myeloma from a metastatic malignant process. Other problems that may be solved by this method are suggested.

Carbon Dioxide Content of Venous Plasma in Pernicious Anemia.—Emerson and Helmer determined the hydrogen ion concentration and the carbon dioxide content of the venous plasma in twenty-nine patients with pernicious anemia and in sixteen normal persons. The results suggest that the condition of the acid-base equilibrium in pernicious anemia is independent of the clinical status and is essentially normal, although there is an apparent tendency toward alkalosis and a deficit of alkali. Of possible significance is the variation of the p_H over a range that was twice as broad in the patients with pernicious anemia as in the series of normal subjects. The daily administration of from 6 to 10 cc. of a 10 per cent solution of hydrochloric acid produced no appreciable changes in the acid-base equilibrium of the blood in the patients with pernicious anemia.

Archives of Surgery, Chicago

30: 371-556 (March) 1935

Significance of Anaerobic Organisms in Peritonitis Due to Liver Autolysis: Bacteriologic Study of Peritoneal Exudates. H. M. Traisler, J. R. Reeves and H. E. Martin, Indianapolis.—p. 371.

*Development and Treatment of Peptic Ulcer: Experimental Study. F. R. Harper, Rochester, Minn.—p. 394.

Lymphosarcoma: Clinical, Pathologic and Radiotherapeutic Study: Report of Thirty Cases. M. Cutler, Chicago.—p. 405.

*Neurofibroma of Ureter: Report of Case with Operation and Recovery. A. Ravich, Brooklyn.—p. 442.

Cholecystogastrostomy and Hepatitis: Experimental Study. A. Gentile, Newport News, Va.—p. 449.

Experimental Studies on Pulmonary Suppuration. J. J. Longacre and L. G. Herrmann, Cincinnati.—p. 476.

Mesenteric Lymphadenitis Simulating Acute Appendicitis: Quantitative Study of Size of Normal Mesenteric Lymph Nodes. C. H. Mead, Duluth, Minn.—p. 492.

Clinical Use of Plastic Pylorojejunostomy in Chronic Duodenal Ulcer. G. L. McWhorter, Chicago.—p. 528.

*Staphylococcic Empyema and Pyopneumothorax: Pathogenesis, Pathology, Symptoms and Treatment. H. Neuhof and M. Berck, New York.—p. 543.

Development and Treatment of Peptic Ulcer.—Harper submits a method for producing an experimental peptic ulcer in a loop of intestine forming a fistula from an isolated gastric pouch to the abdominal wall. An ulcer formed in each of the dogs in which the fundus of the stomach was used in making the pouch. A combination of three factors was responsible for the development of these ulcers: the chemical and the mechanical factor and the factor of mucosal susceptibility. The chemical action of the gastric secretion was of prime importance. The increasing vulnerability of the intestinal mucosa to the formation of ulcer as the distance from the stomach increased was demonstrated. The mechanical factor probably played a part, for the ulcer developed at a point where the gastric secretion was held constantly in contact with the exposed intestinal mucosa. It was found that an ulcer in an isolated gastric pouch has the same effect in causing loss of appetite, vomiting and loss of weight as does an ulcer in the main gastro-intestinal tract. A preparation consisting of an emulsion of gelatin, acacia, olive oil and lecithin, introduced into the pouch twice daily, was effective in the healing of these experimental ulcers and prevented their formation. The pathologic changes that occurred in the healing of the ulcers were found to be similar to the changes that occur in peptic ulcers in man. The method of treatment brought out the fact that an ulcer will heal in about three weeks if its surface is adequately protected from the gastric secretion. The emulsion used in treating the ulcers has been considered only from the experimental point of view, and the authors draw no conclusion regarding its possible clinical application.

Neurofibroma of the Ureter.—Ravich reports a case of neurofibroma of the ureter in which correct preoperative diagnosis of the tumor was made by means of a wax-tipped catheter and by a retrograde pyelogram. The erroneous impression of a concomitant pelvic tumor was created by the pelvic outline, which showed an irregular mass in the lower portion of the renal pelvis. The case demonstrates the futility of the present day tendency among many physicians to depend entirely on intravenous pyelography for the diagnosis of all pathologic conditions of the urinary tract. There was freedom from symptoms until a short time before the operation in spite of the fact that the large tumor had been gradually increasing its encroachment on the ureteral lumen, with destruction of the kidney parenchyma. The success of early operation is apparent. The patient was alive and well in January 1934, when last heard from. The author states that the general practitioner should be as suspicious of vague urologic conditions as he is of a pathologic condition in the breast. It is only through early diagnosis and treatment that satisfactory results can be hoped for.

Staphylococcic Empyema and Pyopneumothorax.—Neuhof and Berck believe that there are distinctive features in the pathogenesis, development and treatment of staphylococcic pulmonopleural suppuration. They describe the lesion in the form of empyema or pyopneumothorax as an entity and attempt to show that its consideration as such leads to more clearly defined therapeutic measures. The staphylococcus is the cause of the great majority of suppurative pleural infections in infants. The pulmonary lesion from which the staphylococcic pleural infection is derived is usually an abscess of the lung. The invasion of the pleura is by rupture of the abscess in the majority of cases. A staphylococcic abscess of the lung with its complicating pleural infection is a metastatic lesion. The solitary abscess is analogous in origin and in pathologic process to carbuncle of the kidney and can be termed carbuncle of the lung. The authors describe four clinical groups: sacculated empyema, sacculated pyopneumothorax, total or subtotal empyema with or without mediastinal tension and total or subtotal pyopneumothorax with or without mediastinal tension. Communications with bronchi are present in the majority of cases in each group. The first two varieties, termed the adult type, present distinguishing pathologic features but are not distinctive clinically. The third and fourth varieties, termed the childhood type, are characterized by severe mechanical disturbances if there is tension on and shift of the mediastinum. The lesion requiring relief most urgently occurs with early rupture of the abscess of the lung in infants or in young children. The treatment of the adult type, rarely urgent, is by complete opening of the empyema through a liberal incision. The underlying abscess of the lung may require drainage. Urgent treatment is often imperative for the childhood type employing closed drainage.

Iowa State Medical Society Journal, Des Moines

23: 59-114 (Feb.) 1935

Cardiac Insufficiency in Obese Individuals. H. L. Smith and F. A. Willius, Rochester, Minn.—p. 59.

Arthritis: General Considerations. J. C. Parsons, Creston.—p. 61.

Id.: Eye, Ear, Nose and Throat Aspect of Arthritis. J. K. von Lackum, Cedar Rapids.—p. 65.

Id.: Orthopedic Phase of Arthritis. A. F. O'Donoghue, Sioux City.—p. 68.

Colles' Fracture. D. N. Gibson, Des Moines.—p. 76.

Congenital Heart Disease. O. N. Gleene, Fort Dodge.—p. 79.

Strabismus. J. B. Naftzger, Sioux City.—p. 80.

Papillary Cystadenoma of Ovary. C. W. Ellyson, Waterloo.—p. 87.

Traumatic Rupture of Kidney. L. A. West, Des Moines.—p. 90.

Submucous Lipoma of Cecum: Report of Case. A. M. Gordon, Des Moines.—p. 92.

Journal of Clinical Investigation, New York

14: 143-292 (March) 1935

Plasma Fatty Acids After Adrenalin Injection in Normal Subjects and in Patients with Liver Disease: Prognostic Significance. C. M. Jones and Josephine W. Fisk, Boston.—p. 143.

Experimental Production of Loss of Hematopoietic Elements of Gastric Secretion and of Liver in Swine with Achlorhydria and Anemia. D. K. Miller and C. P. Rhoads, New York.—p. 153.

*Applicability of Rebreathing Method for Determining Mixed Venous Carbon Dioxide in Cases of Chronic Pulmonary Disease. D. W. Richards Jr., A. Courmand and Natalie A. Bryan, New York.—p. 173.

Cardiac Output in Relation to Unilateral Pneumothorax in Man. A. Courmand, Natalie A. Bryan and D. W. Richards Jr., New York.—p. 181.

Cytologic Studies on Rheumatic Fever: II. Cells of Rheumatic Exudates. C. McEwen, New York.—p. 190.

*Exchanges of Water, Electrolytes and Heat During Phenylethylhydantoin Sickness. F. V. Rockwell, Rochester, N. Y.—p. 202.

Observations on Calcium and Phosphorus Metabolism in Case of Acromegaly Showing Marked Osteoporosis. W. de M. Scriver and A. H. Bryan, Montreal.—p. 212.

Metabolic Criteria of Hyperparathyroidism: Note. C. L. Robbins and D. M. Kydd, New Haven, Conn.—p. 220.

*Hemolytic Antibodies for Sheep and Ox Erythrocytes in Infectious Mononucleosis. G. H. Bailey and S. Raffel, Baltimore.—p. 228.

Studies in Serum Electrolytes: IX. Change in Total Quantity and Osmolal Concentration of Glucose and Chloride in Serum After Ingestion of Glucose by Diabetic Patients. F. W. Sunderman and E. S. Williams, Philadelphia.—p. 245.

Water and Base Balance of Body. P. H. Laviotes, L. M. D'Esopo and H. E. Harrison, New Haven, Conn.—p. 251.

Changes in Distribution of Body Water Accompanying Increase and Decrease in Extracellular Electrolyte. D. C. Darrow and H. Yannet, New Haven, Conn.—p. 266.

*Occurrence of Antifibrinolytic Properties in Blood of Patients with Acute Hemolytic Streptococcic Infections. W. S. Tillett, Baltimore.—p. 276.

Duroziez's Sign in Normal Subjects and in Patients with Arterial Hypertension, with Especial Reference to Its Relation to Capillary Pulsation and Forward Flow of Blood During Diastole. S. Brown and B. Alexander, Boston.—p. 285.

Venous Carbon Dioxide in Pulmonary Disease.—Richards and his associates investigated the applicability of the method of rebreathing for determining carbon dioxide tensions of the oxygenated mixed venous blood in certain cases

of pulmonary disease. The method required the demonstration of the same "plateau" levels of carbon dioxide tension in successive rebreathing experiments, when the initial carbon dioxide tensions of the mixtures in the rebreathing bag in the separate experiments varied by several millimeters; and the demonstration of equilibrium between carbon dioxide tension in the samples of expired air (during rebreathing) and the carbon dioxide tension in the simultaneously drawn arterial blood. They found that the method gave satisfactory results in two cases of unilateral artificial pneumothorax and doubtful results in two cases of spontaneous pneumothorax with positive pleural pressures, and was unreliable in a case of advanced bilateral tuberculosis, a case of pulmonary fibrosis with dyspnea and two cases of advanced pulmonary emphysema. By the technic that the authors describe they can determine in a given case whether the method of rebreathing is applicable or not.

Phenylethylhydantoin Sickness.—Rockwell made a controlled study of phenylethylhydantoin sickness in the hope that it might indicate how general are the changes in metabolism during fever and allergic states. He observed that in phenylethylhydantoin sickness, as in serum sickness, a temporary retention of water, then of sodium and chloride, then of potassium occurred in the order stated. During the fever there was a slight tendency toward acidosis, as evidenced by a study of the acid-base equilibrium of the urine. At no time during the reaction did there appear any sign of alkalosis. The rate of oxygen consumption was increased in proportion to the height of the fever. The fuel for the increased heat production was not protein. The fever was relieved by an increase in the heat lost through the channels of radiation, conduction and convection.

Hemolytic Antibodies for Sheep Erythrocytes in Infectious Mononucleosis.—Bailey and Raffel state that the hemolytic and hemagglutinative antibodies for sheep and ox red cells found in the serums of cases of infectious mononucleosis are not heterophil or Forssman antibodies but are probably the specific response to an antigen having a factor in common with a thermostable component of sheep and ox erythrocytes, a certain strain of Bacillus Welchii, and possibly horse kidney. These antibodies have the power not only to hemolyze and agglutinate sheep red cells but also to hemolyze and to some extent agglutinate ox red corpuscles, although these immune bodies are not isophil in nature since they are absorbed from the serum by boiled ox and sheep corpuscles. Ox erythrocytes have a broader antigenic relationship to the antibodies of infectious mononucleosis than sheep erythrocytes. The antibodies are probably not found in normal human serum but are rather a specific response associated only with infectious mononucleosis. These antibodies were not absorbed from the serum by any of the organisms cultivated from the upper respiratory tract of patients with the disease. Blood cultures made from cases of infectious mononucleosis were negative, although the injection into rabbits of such cultures containing the blood elements of a patient caused the production of a serum with a high hemolytic titer for sheep cells. The antibodies in infectious mononucleosis and the thermostable antigen in ox and sheep cells that combine with and neutralize them have unique properties of specificity. The primary titration of a serum with fresh sheep erythrocytes, followed by absorption of the antibodies with boiled ox red cells and then retitration of the absorbed serum with fresh sheep corpuscles, provides a specific diagnostic method for the disease.

Acute Hemolytic Streptococcus Infections.—Tillett points out that a specific antisubstance directed against the fibrin dissolving action of hemolytic streptococci was demonstrable in the blood of approximately 75 per cent of patients who recovered from acute streptococcic infections. The fibrin clot from the blood of patients who died of the infection was in no instance capable of inhibiting the bacterial fibrinolytic action. The antifibrinolytic response was demonstrable at the approximate time of recovery in some patients and was not detected in others until the second to the fourth week of convalescence. Generally the specific response appeared during the course of erysipelas earlier than it did following acute streptococcic infections of the upper respiratory tract. Twenty-eight patients developed an antifibrinolytic resistance. All of them completely recovered and their convalescence was not interrupted by a reactivation of the infection. Seventeen patients failed to acquire humoral antifibrinolytic properties. In seven of these the disease was self limiting and convalescence was uneventful. Of the remaining ten, seven died and three had prolonged illnesses due to exacerbations of active streptococcic infection. In the few cases of active rheumatic fever and acute nephritis that were studied, antifibrinolytic resistance was usually present. The response did not differ in its development from that which occurred in cases of acute streptococcic infection without the visceral disturbances of rheumatic fever or acute nephritis.

Journal of Comparative Neurology, Philadelphia

82: 1-190 (Feb. 15) 1935

Studies of Living Nerves: III. Phenomena of Nerve Irritation and Recovery, Degeneration and Repair. C. C. Speidel, Charlottesville, Va.—p. 1.

Development of Motor Nuclei of the Hindbrain of the Chick, Gallus Domesticus. L. B. Echardt and R. Elliott, Columbus, Ohio.—p. 83.

Histologic Analysis of Nissl-Pattern and Nissl-Substance of Nerve Cells. L. Einarson, Copenhagen, Denmark.—p. 101.

Experimental Innervation of Muscles by Central Ends of Afferent Nerves (Establishment of One Neuron Connection Between Receptor and Effector Organ), with Functional Tests. P. Weiss, Chicago.—p. 135.

Effects of Ultracentrifugating the Spinal Ganglion Cells of the Rat, with Especial Reference to Nissl Bodies. H. W. Beams and R. L. King, Iowa City.—p. 175.

Journal of Nervous and Mental Disease, New York

81: 245-372 (March) 1935

Study of Syringomyelia and Formation of Cavities in Spinal Cord. E. S. Taube and O. R. Langworthy, Baltimore.—p. 245.

*Clinical Spectroscopy: Spectrometric Analysis of Biopsy Specimens Obtained from Cases of Plumbism and Workmen in Daily Contact with Lead Paints. L. E. Gaul and A. H. Staud, New York.—p. 265.

Relation Between Mental Level and Syphilis in Juvenile Delinquents (Boys): Report of Case of Juvenile General Paralysis of Insane. M. Molitch and A. K. Eccles, Jamesburg, N. J.—p. 276.

Certain Problems of Schizophrenia in Light of Cerebral Pathology. G. Bychowski, Warsaw, Poland.—p. 280.

Treatment of Spasmodic Torticollis, with Especial Reference to Psychotherapy: Report of Case. J. C. Yaskin, Philadelphia.—p. 299.

Clinical Spectroscopy.—Gaul and Staud observed that the ultimate chemical and cellular disposition of lead in the body determines the distribution, localization and excretion. Its absorption may be either slowly accumulative or massive in character, the latter precipitating the signs and symptoms of an acute lead intoxication. It is the quantity of lead retained by the differentiated and undifferentiated mesodermic derivatives that causes the disabling sequels of plumbism. In the presence of a lowering p_H or acidosis, the solubility of the retained lead is affected. This change in solubility will act like the unsheathing of a two-edged sword, producing the signs and symptoms of acute lead poisoning, the severity of which will depend on the quantity of lead present and the degree of acidosis. In plumbism, signs and symptoms of excretion include all signs and symptoms referable to the mouth and the gastrointestinal, respiratory and genito-urinary tracts, and in retention all signs and symptoms referable to the central and peripheral nervous system and the muscular and skeletal systems. The excretion of lead is a favorable response. A plus designation is suitable for indicating the quantity or degree of lead retention. A biospectrometric analysis of cadaver biopsy specimens showed the lead line increasing in density in proportion to the age, with a mean lead retention of one plus. A biospectrometric analysis of six cases of plumbism showed a lead line the density of which indicated a three to four plus retention. A biospectrometric analysis of workmen in contact with lead showed a lead line the density of which indicated a one plus retention in 40 per cent of the group, a two plus in 28 per cent, a three plus in 12 per cent and a four plus in 20 per cent. A dermal biopsy specimen gives an accurate status of the quantity or degree of lead retention, whereas the blood specimen gives a false value for the degree of lead retention. The quantity of lead excreted in the urine and feces gives no indication of the quantity or degree of lead retention. The presence of basophilic stippling cannot be accepted as a diagnostic criterion or as a pathognomonic sign of plumbism.

Journal of Nutrition, Philadelphia

9: 119-260 (Feb. 10) 1935

Vitamin G Content of Home Canned Tomato Juice. C. F. Poe and Esther L. Gambill, Boulder, Colo.—p. 119.
Further Studies on Effect of Cod Liver Oil on Thyroid Gland. T. C. Sherwood and W. G. Luckner, Lexington, Ky.—p. 123.
Effects of Long Continued Cholesterol Feeding in Rats. W. M. Sperry and V. A. Stoyanoff, New York.—p. 131.
Effect of Diet on Liver Cholesterol in Chickens. W. M. Sperry and V. A. Stoyanoff, New York.—p. 157.
Vitamins A, D and B in Oysters: Effect of Cooking on Vitamins A and B. Dorothy V. Whipple, Philadelphia.—p. 163.
Mineral Exchanges of Man: IV. Variations in Mineral Content of Diets with Constant Raw Weight Formula. S. H. Bassett and Helen E. Van Alstine, Rochester, N. Y.—p. 175.
Relation of Manganese to Congenital Debility. Amy L. Daniels and Gladys J. Everson, Iowa City.—p. 191.
Respiratory Metabolism Studies in Hyperinsulinism Following Ingestion of Glucose. I. M. Rabinowitch and A. F. Fowler, with technical assistance of M. Mountford and P. Helroyde, Montreal.—p. 205.
Human Calorimetry: I. Semiautomatic Respiration Calorimeter. J. R. Murlin and A. C. Burton, Rochester, N. Y.—p. 233.

Journal of Thoracic Surgery, St. Louis

4: 223-334 (Feb.) 1935

Primary Carcinoma of Lung: Case: Report Four Years After Lobectomy. C. I. Allen, Detroit.—p. 224.
Total Removal of Right Lung for Bronchiectasis. E. Windsberg, Providence, R. I.—p. 231.
Report of Chest Tumor Registry. W. D. Andrus, New York.—p. 236.
*Pleural Poudrage: New Technic for Deliberate Production of Pleural Adhesions as Preliminary to Lobectomy. N. Bethune, Montreal.—p. 251.
Incidence of Hiatus Hernia in Pregnant Women and Its Significance. L. G. Rigler and J. B. Eneboe, Minneapolis.—p. 262.
Changes in Venous Pressure After Thoracoplasty: Its Significance in Relation to Extent of Rib Removal. R. H. Overholt and L. S. Pilcher 2d, Boston.—p. 269.
Critical Study of Some Unsatisfactory Results from Thoracoplasty Operations. W. A. Hudson, Detroit.—p. 281.
Experience with Pneumocavernolysis. B. P. Potter, Secaucus, N. J.—p. 288.
Liquid Levels and Other Liquid Surfaces in Pleural Effusions: Study of Their Dynamics. J. Kaunitz, New York.—p. 300.
*Cardiospasm Due to Diaphragmatic Gastric Hernia with Ulcer: Report of Case: Operative Procedure. M. Einhorn, D. Stetten and W. H. Stewart, New York.—p. 310.
Effect of Pulmonary Disease on Blood Gas Content: I. Effect on Plasma Carbon Dioxide Combining Power. E. F. Butler and Dorothy Fairbanks, Elmira, N. Y.—p. 316.
Improved Thoracoscope with Electrodes for Division of Intrapleural Adhesions. J. A. Moore, Asheville, N. C.—p. 324.
Automatic Hilar Ligature for Lobectomy. D. Carr, Memphis, Tenn.—p. 327.

Pleural Poudrage.—Bethune believes that selective pleural symphysis without fluid formation can be produced as a preliminary to intrathoracic surgical operations, such as lobectomy, by using a fine commercial talc powder consisting of a 0.5 per cent iodized talc, sterilized in the autoclave and introduced under local anesthesia in the sixth or seventh space scapular line through a thoracoscopic cannula with an air-tight valve. The pleura is inspected. The thoracoscope is taken out and the author's return-air powder blower is inserted through the same cannula. Half a dozen puffs are given and then the thoracoscope is again inserted. This is repeated as often as necessary to cover the surface of the upper lobe. If the mediastinum is to be covered, a longer cannula is used than the regular one, which projects only 0.5 cm. beyond the tip of the thoracoscopic cannula. When the lung is covered so as to resemble a cake sprinkled with confectioners' sugar, the blower is detached and the air is completely aspirated. To make sure that all the air is aspirated, roentgen examination is indicated. If a line of pneumothorax is seen on the roentgenogram more than 0.5 cm. in width, this air must be extracted the same day. If less than this, it may be left. Ten months has passed since operation was performed in the first of the author's five clinical cases, and up to the present he has no reason to believe that ill effects are to be expected from the presence of this insoluble powder between the two pleural surfaces.

Cardiospasm Due to Diaphragmatic Gastric Hernia with Ulcer.—Einhorn and his associates cite a case of cardiospasm that shows the great importance of a thorough roentgen examination for establishing the diagnosis and the value of surgery to effect a cure. The prominent symptoms of dysphagia of but short duration (three or four months), the absence of the swallowing sound at times alternating with its delayed appearance at other times, and the constant presence of resistance to the passage of a bougie at about 15 inches from the teeth indicated cardiospasm, probably due to a beginning neoplasm of the stomach. The duodenal bucket string test showing that there was no real stricture at the cardia or pylorus favored the same diagnosis. For this reason, duodenal alimentation had been instituted and the patient was greatly relieved temporarily. Bearing in mind the possibility of malignant changes, the authors decided on another roentgen examination. This time roentgenograms revealed a diaphragmatic hernia as the probable cause of the cardiospasm. Etiologically a trauma (the lifting of a barrel) was probably the cause of the hernia. Surgery was successful and the patient thus far is apparently cured.

Kansas Medical Society Journal, Topeka

36: 45-88 (Feb.) 1935

Cancer of the Rectum. J. L. Jelks, Memphis, Tenn.—p. 45.
Changing Concept of Heart Disease. J. M. Porter, Concordia.—p. 50.
Gonorrheal Infections in the Female. C. V. Black, Pratt.—p. 56.
Value of Tuberculin Test. C. Hall, Topeka.—p. 60.
Dermoid Cyst of Ovary. W. Cox, Wichita.—p. 62.

Medical Annals of District of Columbia

4: 29-62 (Feb.) 1935

Evipal Soluble: Unique Anesthetic for Intravenous Use. X. C. Suraci, Washington.—p. 29.
Gastric Syphilis. F. L. Biscoe, Hines, Ill.—p. 34.
Elliott Heat Treatment in Pelvic Infections. A. A. Preece, Washington.—p. 38.
Medical Education and Hospitals in Greece. C. J. Demas, Washington.—p. 42.
Basal Cell Epithelioma of Larynx with Apparent Recovery. D. S. Knowlton, Washington.—p. 46.

Michigan State M. Society Journal, Grand Rapids

34: 139-196 (March) 1935

Preoperative and Postoperative Treatment of the Toxic Thyroid Patient. E. C. Cutler, Boston.—p. 139.
Every Physician a Health Teacher. W. E. Collins, Kalamazoo.—p. 145.
Excessive Cigaret Smoking in Women and Its Effect on Their Reproductive Efficiency. A. M. Campbell, Grand Rapids.—p. 146.
Intermittent Duodenal Obstruction. J. K. Bell, Detroit.—p. 151.
Conservative Repair of Pelvic Prolapse. E. G. Krieg, Detroit.—p. 156.
*Discussion of Value of Various Prophylactic Measures in Prevention of Common Colds. P. H. Long, Baltimore.—p. 157.
Solid Teratoma of Ovary: Case Report. Susanne Munro Sanderson, Detroit.—p. 166.
Fetal Hypoglycemia Due to Hyperinsulinism. W. H. Gordon, Detroit.—p. 167.
Metaphase Dermatitis: Report of Two Cases. G. H. Belote and D. Marshall, Ann Arbor.—p. 172.

Prevention of Common Colds.—Long discusses the value of various prophylactics that have been used for the prevention of the common cold. He has endeavored to determine the true part played by bacteria in the course of colds. He demonstrated that two main types of cellular response are found in the nasal secretions from patients with colds. One is characterized by an early predominance of phagocytic and epithelial cells in the secretions, while in the other type polymorphonuclear neutrophilic leukocytes predominate from the beginning of the infection. Seven first day specimens of nasal secretions showed a predominance of polymorphonuclear neutrophilic leukocytes and four were practically free from bacteria when cultures were taken on blood agar plates, while three contained thousands of micro-organisms. Of eight first day samples of nasal secretions in which monocytes and epithelial cells predominated, five showed an abundance of organisms and three were practically sterile. It is evident that on the first day of colds it is not possible to correlate the presence or absence of bacteria with a polymorphonuclear neutrophilic leukocyte response. As streptococci, staphylococci and pneumococci were the organisms generally found in these secretions, this lack of correlation assumes added importance. After the fourth day the polymorphonuclear neutrophilic leukocytes averaged 90 per cent of the total cells present in the nasal secretions. Nevertheless a scanty bacterial growth was obtained from eighteen of sixty-five specimens examined in the late stages of these colds. The puriform character of the nasal secretions in the advanced stages of colds is not dependent on the presence of numbers of bacteria. The lack of correlation between the bacterial content and cellular response of the nasal secretions is

considered to be evidence of a lack of pathogeny on the part of these bacteria in the course of colds. Therefore it may be assumed that these organisms are present in the nasal secretions because these secretions constitute a medium favorable for bacterial growth. If true, the failure of bacterial vaccines to modify the severity or duration of uncomplicated colds can be easily understood.

Military Surgeon, Washington, D. C.

70: 113-172 (March) 1935

History of Medical and Domiciliary Care of Veterans. G. E. Ijams and P. B. Matz.—p. 113.
*Typhoid Fever in the Vaccinated. H. C. Coburn Jr., F. R. Ostrander and J. O. Gillespie.—p. 133.
Medical Practice in Zamboanga. G. E. Horrocks.—p. 138.

Typhoid in Vaccinated Patients.—Coburn and his associates observed thirty-nine cases of typhoid among vaccinated or partly vaccinated persons, from the study of which they conclude that: 1. Typhoid vaccination furnishes relative, but not absolute, protection against typhoid. 2. The incidence of typhoid in the vaccinated depends on the size of the dose of organisms swallowed. Their patients had undoubtedly ingested massive doses. 3. In the presence of suggestive symptoms, typhoid should be considered, even though the patient has been vaccinated. 4. Agglutination and protection from vaccination do not necessarily parallel each other. A positive Widal reaction may have diagnostic value, even in a vaccinated person. 5. There is little or no difference clinically between typhoid in the vaccinated and the nonvaccinated. 6. Mortality may be lower in the vaccinated, especially in the recently vaccinated, but variations in virulence in different epidemics must not be overlooked. 7. A high incidence of relapses may be associated with high caloric feeding.

Minnesota Medicine, St. Paul

18: 65-130 (Feb.) 1935

Hyperparathyroidism. J. F. Berg, St. Paul.—p. 65.
Present Status of Our Knowledge of Adrenal Gland. M. H. Hoffman, St. Paul.—p. 66.
Clinical Application of Ovarian Follicular Hormone. L. F. Hawkinson, Brainerd.—p. 69.
Suprarenal Cortical Hormone. E. C. Kendall, Rochester.—p. 71.
Basophilic Adenoma of Pituitary Gland. H. L. Ulrich, Minneapolis.—p. 73.
Fractures of Lower End of Radius. C. A. Reed, Minneapolis.—p. 78.
Fractures of Carpal Navicular Bone. W. H. Cole and G. A. Williamson, St. Paul.—p. 81.
Malunited Fracture of Lower End of Radius (Colles' Fracture) Treated by Osteotomy. H. W. Meyerding and L. M. Overton, Rochester.—p. 84.
Acute Fractures of Spine. C. C. Chatterton, St. Paul.—p. 88.
Treatment of Fresh Fractures of Hip. M. O. Henry, Minneapolis.—p. 91.
Treatment of Nonunion Fracture of Hip. E. T. Evans, Minneapolis.—p. 93.
Fractures of Shaft of Tibia and Fibula. J. H. Moe, Minneapolis.—p. 94.
Intra-Articular Fractures of Ankle Resulting from Indirect Violence. V. L. Hart, Minneapolis.—p. 97.
The Broken Nose: Some Simple Rules for Management of Recent Fractures of Nasal Bones in General Practice. V. J. Schwartz, Minneapolis.—p. 101.
Disturbance in Function of Parathyroid Glands of Children. R. L. J. Kennedy, Rochester.—p. 107.

New York State Journal of Medicine, New York

35: 193-238 (March 1) 1935

Will America Copy Germany's Mistakes? Results of a Half a Century's Practice of Social Insurance in the Land of Its Inception. G. Hartz, Berlin, Germany.—p. 195.
*Observations on Arsphenamine Dermatitis, with Especial Reference to the Reliability of the Patch Test. J. W. Jordan and E. D. Osborne, Buffalo.—p. 210.
Finding Tubercle Bacilli. J. S. Woolley, Loomis.—p. 217.

Arsphenamine Dermatitis.—Jordan and Osborne state that the patch test is not a reliable guide to further treatment with the arsphenamines following recovery from an arsphenamine dermatitis. Patch tests may be negative or only slightly positive when cutaneous intolerance to the further intravenous administration of the drugs exists. Severe vesicular forms of dermatitis following the intravenous administration of the arsphenamines appear to represent true allergic reactions to the arsphenamines or to products of their metabolism. Further treatment is usually contraindicated. Mild erythematous and erythematopapular forms of arsphenamine dermatitis do not appear to represent true allergy to the arsphenamines or products of their metabolism and usually do not contraindicate further treatment with these drugs. On the basis of their observations and those of others, the authors suggest that patch tests with the arsphenamines may induce a state of cutaneous allergy where none existed previously. They believe that, in the present state of knowledge, the only safe method of determining whether further arsphenamines can be tolerated following a mild arsphenamine dermatitis is by the intravenous administration of small gradually ascending doses of arsphenamine.

Public Health Reports, Washington, D. C.

50: 281-322 (March 1) 1935

Purpose and Function of School Health Records. E. E. Kleinschmidt.—p. 281.

West Virginia Medical Journal, Charleston

31: 97-144 (March) 1935

Some of the Newer Methods for Diagnosis and Treatment of Cancer. L. C. Cohn, Baltimore.—p. 97.
Pulmonary Tuberculosis. R. D. Roller, Charleston.—p. 102.
Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. G. F. Grisinger, Charleston.—p. 106.
The Physician and Literature. B. R. Tucker, Richmond, Va.—p. 110.
*Dextrose: Its Use in Heart Disease. E. Podolsky, Brooklyn.—p. 115.
Evipal Anesthesia: Preliminary Report. P. J. McNelis, Charleston.—p. 120.
Foreign Body in Middle Metatarsal Bone. C. R. Kessel, Ripley.—p. 123.
Perineal Hernia: Case Report. W. W. Strange, Huntington.—p. 125.

Use of Dextrose in Heart Disease.—Podolsky says that dextrose has two definite modes of action on the heart. The first is its angiotrophic action, which is of particular value in angina pectoris and coronary sclerosis. The second is that the administration of large amounts of sugar permits of glycogen storage both in skeletal and in heart muscles. Intravenous injections of dextrose can be given safely and with little reaction if proper precautions are observed. The strength of the solutions used varies from 5 to 50 per cent. The amounts given may vary from 5 cc. per kilogram of body weight in the case of concentrated solutions to 20 cc. per kilogram in the case of more dilute solutions. Intramuscular injections of dextrose may be given with safety, by observing the same precautions as with intravenous technic. Subcutaneous injections of 10 per cent may be given with safety. In the experience of Rimbaud, Balmes and Anselme-Martin, dextrose-insulin therapy has yielded excellent results in cases of cardiac failure, particularly in the reduction of edema and the relief of subjective symptoms. Left ventricular insufficiency is generally influenced favorably under insulin-dextrose treatment, with an improvement in the quality of the auscultated sounds. Dextrose-insulin therapy is most likely to succeed in the early stages of cardiac insufficiency before gross anatomic changes have been suffered by the myocardium. Insulin acts directly on the nutrition of the myocardium and also produces an equilibrium of the two functions of glycolysis and glycogenesis. Insulin-dextrose therapy in heart disease is not wholly free from danger. Quite a few cases of stenocardial pain following the administration of insulin have been reported, particularly in patients suffering from arteriosclerosis. Occasionally coronary occlusion may follow as a result of insulin therapy. In a heart already impoverished by coronary disease, the injudicious use of insulin alone metabolizes too much glycogen, an element of great importance in myocardial tissue metabolism, and leads to further physiologic imbalance. The most unfavorable results with dextrose-insulin therapy occur most often in diabetic patients, in whom the heart is already adjusted to high sugar levels. The introduction of insulin therapy suddenly reduces this level, with resultant cardiac pain. Dextrose is also not to be thought of as a heart remedy in these cases. Experimental evidence shows that the heart muscle gives up its glycogen with great difficulty, and yet this change is influenced to a great degree by quite a few endocrine substances, particularly epinephrine, thyroxine, solution of pituitary and insulin. While these substances may produce only minor changes in a normal heart, they may bring about rather undesirable alterations in a heart that is diseased. This may be the case in diabetes as well as in arteriosclerosis. It is desirable to make a thorough examination of the patient before dextrose or dextrose-insulin treatment is instituted in heart disease.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

10: 1-60 (Feb.) 1935

Actinomycosis in Childhood: Clinical Study and Review. R. W. B. Ellis.—p. 1.
Incidence of Various Types of Pneumococci in Infections Other Than Pneumonia. R. W. Fairbrother.—p. 25.
*Papular Urticaria (Lichen Urticatus). B. C. Tate.—p. 27.
Obsessive Compulsive States in Childhood and Their Treatment. Muriel Barton Hall.—p. 49.

Papular Urticaria.—Tate concludes that papular urticaria is a definite and distinct syndrome, separable from urticaria and from Hebra's prurigo. It is a manifestation of allergy and a disorder of the first four years of life. It is aggravated by heat and by a diet containing too much carbohydrate. Digestive disorders, teething and mild febrile disturbances probably predispose to papular urticaria, but such conditions are of minor importance in its etiology. Rickets plays no part. There is no satisfactory evidence of any underlying diathesis. The exciting agent is not a food but something connected with the patients' home environment; its precise nature, however, remains obscure. It is not bedding or clothes, but it can be carried on these articles. It is not vermin, animal size, or an antigen derived from human beings or domestic animals. Sensitivity to house dust has not been definitely excluded. Many children suffer from transient attacks of papular urticaria and recover without treatment, an important fact that must always be borne in mind in any attempt to estimate the value of a particular remedy. Treatment is tested by the chronic cases, and only too frequently it proves far from satisfactory. The admission of the patients to a hospital always brings relief, and in the author's cases, although relapse occurred when they returned home, the symptoms were much less severe than before. This seems to be by far the most valuable therapeutic measure in all those severe and persistent cases in which the general health suffers from the continual irritation and loss of sleep.

British Journal of Experimental Pathology, London

16: 1-108 (Feb.) 1935

Calibration of Graded Collodion Membranes. W. J. Elford and J. D. Ferry.—p. 1.
*Species Immunity to Pneumococcus. D. Harley.—p. 14.
*Streptococcus Complement Fixation Reaction in Rheumatic Diseases. A. Beck and F. Coste.—p. 20.
*Action of Acetone and of Ketone Bodies Present in Diabetic Blood on Heart. M. M. Bagoury.—p. 25.
Methemoglobin Production Test for Assaying Antianemic Potencies of Liver Extracts. W. Deutsch and J. F. Wilkinson.—p. 33.
Further Evidence That Mammals Cannot Acclimatize to Ten Per Cent Oxygen or Twenty Thousand Feet Altitude. J. A. Campbell.—p. 39.
Some Observations on Structure and Functions of Lymphatics: Their Behavior in Local Edema. B. D. Pullinger and H. W. Florey.—p. 49.
Estimation of Size of Fowl Tumor Virus by Filtration Through Graded Membranes. W. J. Elford and C. H. Andrewes.—p. 61.
Copper Content of Blood in Pregnancy. S. L. Tompsett and D. F. Anderson.—p. 67.
Mechanism of Immunity to Filtrable Viruses: I. Des Virus Combine with Protective Substance in Immune Serum in Absence of Tissue? A. B. Sabin.—p. 70.
Id.: II. Fate of Virus in System Consisting of Susceptible Tissue, Immune Serum and Virus, and Rôle of Tissue in Mechanism of Immunity. A. B. Sabin.—p. 84.
Relationship Between Complement and Opsonin of Normal Serum. J. Gordon and F. C. Thompson.—p. 101.

Species Immunity to Pneumococcus.—The experiments of Harley demonstrate that, when solutions of pneumococcus type-specific antigens (prepared by allowing pneumococci to undergo partial autolysis in acid sodium chloride, or by extracting the organisms with dilute acid at 60 C.) are rendered alkaline and incubated at 37 C., the immunizing properties of the solution for mice are altered. The injection of pneumococcus type-specific antigen solutions or of heat-killed vaccines in mice produces an immunity only to the homologous type of organism. The injection in mice of solutions of type-specific antigen solutions that have been made alkaline and incubated at 37 C. produces an immunity not only to the homologous type of organism but also to the heterologous types. It seems probable that this change of antigenic properties is due to an alteration in structure of the type-specific antigen, possibly of the nature of a hydrolysis. The author states that the foregoing experiments confirm the work of Day that pneumococcus species antigen preparations produce in mice an immunity to virulent pneumococci generally.

Streptococcus Complement Fixation Reaction in Rheumatic Diseases.—Beck and Coste made complement fixation tests on seventy-nine serums from rheumatic patients and on fifty-three control serums. A number of the former group gave positive reactions with streptococcus lipoid antigens and failed to react with lipoid antigens of other bacteria or with tuberculous and syphilitic lipoid antigens. Examinations of the control serums showed that tuberculous serums and serums of pregnancy often react with streptococcus lipoid antigens. Therefore in assessing the significance of positive streptococcus reactions these conditions must be excluded. The positive reaction with a streptococcus antigen has been observed only in cases of rheumatic disease in which clinically a connection with streptococcic infection was probable. But even in these cases, and also in acute streptococcic infections (scarlet fever, erysipelas), the proportion of positive reactions is not high (seven positive reactions out of forty-four rheumatic serums). The authors think that the sensitiveness of the reaction is not yet optimal and they are now trying to increase it. If this can be done, it may be possible to determine whether rheumatic disease is of streptococcus or other origin.

Action of Acetone and of Ketone Bodies on the Heart.—Bagoury compares the action of acetone, of beta-oxybutyric acid and of diacetic acid on the heart muscle and on the coronary circulation. The substances to be tested were administered singly or together in various proportions, and in some experiments the concentration of the blood sugar was raised in order to imitate the diabetic conditions. The ketone bodies and the sugar were used in concentrations reported to be present in mild and severe forms of diabetes, and also in concentrations considerably above those found in human diabetes. Acetone and diacetic acid produce a weakening of the heart, as evidenced by cardiac dilatation and rise of the venous and pulmonary pressures. The toxicity of diacetic acid is from about fifteen to twenty times greater than that of acetone. The minimal effective concentration of diacetic acid is from 2 to 3 mg. per hundred cubic centimeters and that of acetone from 25 to 40 mg. The weakening effect of acetone remains unchanged so long as the acetone remains in the circulation. When the blood is replaced by acetone-free blood, the heart recovers completely. The cardiac dilatation produced by small doses of diacetic acid tends to disappear spontaneously. Beta-oxybutyric acid has no specific action on the heart up to concentrations of 1 per cent. Its effects are entirely accounted for by the change in the acid-base equilibrium that the acid produces in the blood. The three ketone bodies produce an increase in the coronary flow of the blood. This effect is, however, negligible unless the concentration of these substances in the blood is high.

British Journal of Radiology, London

8: 137-200 (March) 1935

Clinical Radiology of Digestive Mucosa: Seventeenth Sylvanus Thompson Memorial Lecture. H. H. Berg.—p. 137.
X-Rays and Coarse Structure of Materials: The Fifteenth Mackenzie Davidson Memorial Lecture. W. H. Bragg.—p. 144.
Dosage in Radiation Therapy. R. Paterson.—p. 155.
Canalization of Neutrons: I. T. A. Chalmers.—p. 163.
Cholecystography. B. R. Kirklin.—p. 170.
*Luminescent Properties of Zinc Sulphide in Relation to X-Rays. L. Levy and D. W. West.—p. 184.

Luminescent Properties of Zinc Sulphide in Relation to X-Rays.—Levy and West point out that the fluorescent and phosphorescent effects of zinc sulphide when stimulated by many types of radiations are in most cases more intense than similar phenomena displayed by any other known substance. Zinc sulphide has never found practical application in roentgenography, owing to the phosphorescence that heretofore has always accompanied the fluorescent phenomena. Entirely new types of zinc sulphide have recently been developed, which exhibit intense fluorescent effects without any phosphorescence. The application of these substances to roentgenography has resulted in considerable improvements in fluorescent screens for visual purposes and also in intensifying screens, special varieties of which have found application in roentgen cinematog-

raphy. The response of these new fluorescent substances toward the softer radiations is greater than that shown by the substances previously in use. This enables roentgenographic work to be carried out with advantage at a lower kilovoltage than that which was formerly employed. The new zinc sulphide intensifying screens have also found application in reducing the long exposures heretofore required for roentgen spectroscopy. The exposure is reduced in certain cases to one twentieth of the normal value. The latent image of roentgen exposure can be stored in the phosphorescent type of zinc sulphide and rendered visible to the eye for subsequent examination.

British Medical Journal, London

1: 345-400 (Feb. 23) 1935

Sterility Due to Ovarian Dysfunction. T. N. A. Jeffcoate.—p. 345.
Surgical Treatment of Bronchiectasis. A. G. Bryce.—p. 350.
Atheroma of Coronary Artery and Myocardial Fibrosis. J. Grant and J. H. Miller.—p. 353.
Carcinoma of Suprarenal Cortex Associated with Hypertension. A. Lyall.—p. 354.
*Basophil Adenoma of the Pituitary Gland with Renal Changes. H. G. Close.—p. 356.
Chronic Disseminated Pulmonary Tuberculosis with Erythema Nodosum: Case. S. Deaner.—p. 357.

Basophil Adenoma of the Pituitary with Renal Changes.—Close cites the case of a basophil adenoma of the pituitary in a male identified by necropsy. Apart from the high blood pressure there was no reason to suspect either the syndrome or the pituitary lesion, and the finding of the basophil adenoma was accidental. The case is unlike the others of basophil adenoma so far recorded in that the kidney was markedly affected by chronic glomerulonephritis. But there was no evidence to suggest that the association of the chronic glomerulonephritis with the basophil adenoma or with the malignant hypertension was other than fortuitous. Liability to sepsis was exemplified in the present case. The patient had had many sore throats in the last eight years of his life, and at the postmortem examination the foul condition of the tonsils was a striking feature. The author does not consider abnormal the absence of cells in the posterior lobe of the pituitary in spite of Cushing's recent attempts to attribute the raised blood pressure to the secretion of these cells. The author states that, if a large series of pituitaries are examined, it will be found that the invasion of the posterior lobe by cells growing out from the pars intermedia is comparatively common, particularly in middle aged subjects, and that marked invasion of the posterior lobe may also be seen in the pituitaries of persons whose blood pressures have been normal for at least several months before death.

Edinburgh Medical Journal

42: 101-204 (March) 1935

Tuberculosis of Central Nervous System Followed by Apparent Clinical Recovery. Agnes R. Macgregor, H. J. R. Kirkpatrick and W. S. Craig.—p. 101.
Acute Pneumonic Phthisis: Report on Three Cases in Which Treatment by Artificial Pneumothorax Was Attempted. W. A. Horne.—p. 103.
Musings in the Garden: Fifty Years' Association with Tubercle Bacillus. R. Philip.—p. 106.
School Medical History of Persons Who Develop Pulmonary Tuberculosis in Young Adult Life. E. Watt and P. L. M'Kinlay.—p. 125.
Meningeal Tuberculosis. W. Brown.—p. 126.
Id.: Seasonal, Age and Sex Incidence. I. M'Crachen.—p. 131.
*Id.: Bacteriology and Pathology. Agnes R. Macgregor, H. J. R. Kirkpatrick and W. S. Craig.—p. 138.
Cerebrospinal Fluid in Tuberculous Meningitis. J. G. Clark.—p. 146.
Meningeal Tuberculosis as Terminal Feature in Pulmonary Tuberculosis. C. Cameron.—p. 154.
*Renal Tuberculosis: I. Histopathology and Pathogenesis. D. Band.—p. 162.
Id.: II. Bacteriologic Characteristics of Tubercle Bacilli. J. M. Alston and A. S. Griffith.—p. 175.
Id.: III. Tubercle Bacilluria and Its Significance. W. T. Munro.—p. 177.
Ninth Conference of the International Union Against Tuberculosis, Warsaw, Sept. 4 to 6, 1934. A. F. Hewat.—p. 184.

Meningeal Tuberculosis.—Macgregor and her associates give the following tentative conclusions regarding meningeal tuberculosis: 1. Tubercle bacilli may be present in the cerebrospinal fluid in the absence of diffuse tuberculous meningitis. 2. Diffuse tuberculous meningitis is usually the result of infection of the subarachnoid space from a preexistent localized focus in the brain or meninges, not a direct result of miliary tuberculosis. 3. Such localized foci result from infection of the central nervous system by numbers of tubercle bacilli, too small to produce diffuse meningitis, taking place during periods of bacillemia. 4. Such limited infections, giving rise to localized lesions, sometimes occasion clinical manifestations of a pathologic process within the central nervous system, which may be transient and from which clinical recovery may be complete at least for a time.

Renal Tuberculosis.—Band states that the earliest tuberculous lesions of the kidney are epitheloid and mononuclear tubercles. They are found in relation to the glomeruli of the renal cortex. These primary or minor tuberculous lesions of the kidney are bilateral. Many of them heal. The presence of tubercle bacilli in the urine withdrawn from the renal pelvis means a tuberculous focus in the kidney. Early tuberculous follicles may become encysted and fail to discharge infected débris to the tubules, i. e., remain closed. As a rule, caseating foci ultimately ulcerate to the tubules. The collecting tubules converge at the apex of the pyramid, which is thus liable to infection by direct spread from foci in the corticomedullary zone and by tubular extension. A lesion is open when it communicates with the renal pelvis either directly or through the tubules. The presence of open cortical lesions can be diagnosed clinically when tubercle bacilli and pus cells are found in the renal urine and changes in the pyelographic outline of the renal pelvis and calices are absent. The later stage of confluence of follicles and ulceration at the papilla leads to the pyelographic changes and the clinical syndrome of tuberculous disease of the kidney.

International Journal of Psycho-Analysis, London

16: 1-130 (Jan.) 1935

Psychologic Compensations of Analyst. Barbara Low.—p. 1.
Anthropophagy: Its Forms and Motives. F. Boehm.—p. 9.
Psychoanalysis of Asocial Children and Adolescents. Melitta Schmideberg.—p. 22.
Process of Introjection in Melancholia. K. Marui.—p. 49.
Agoraphobia and Its Relation to Hysteric Attacks and to Traumas. E. Weiss.—p. 59.

Journal of Anatomy, London

69: 153-296 (Jan.) 1935

Mast Cells of Human Pituitary and of Mammalian Pituitary in General: Preliminary Note. J. H. Gray.—p. 153.
Diagnostic Application of Our Knowledge of Normal Variability of Cutaneous Nerve Areas, Exemplified by Median and Ulnar Nerves. I. M. Thompson.—p. 159.
Composition and Distribution of Vascular Nerves in Extremities. H. H. Woollard and G. Weddell.—p. 165.
Vital Staining of Nervous System: I. Factors in Vital Staining of Neurons. L. S. King.—p. 177.
Uncrossed Lateral Pyramidal Tract in Higher Primates. J. F. Fulton and D. Sheehan.—p. 181.
Pulmonic Alveolar Vents. C. C. Macklin.—p. 188.
Distribution of Palmar Aponeurosis in Relation to Dupuytren's Contraction of Thumb. W. F. Harper.—p. 193.
Topography of Unpaired Visceral Branches of Abdominal Aorta. R. George.—p. 196.
Hair Tracts of Australian Aboriginal. J. H. Gray.—p. 206.
Craniometric Memoirs: VI. Comparative Study of Intertemporal and Interangular Dimensions of Frontal Bone. J. Cameron.—p. 226.
General Pattern of Arrangement of Cranial Roofing Bones in Fishes. E. P. Allis Jr.—p. 233.

Lancet, London

1: 361-418 (Feb. 16) 1935

Development of Liver Therapy in Pernicious Anemia. G. R. Minot.—p. 361.
Schick Immunity and Diphtheria Infection. E. A. Underwood.—p. 364.
*Treatment of Parathyroid Tetany. D. Campbell.—p. 369.
*Basophil Adenoma of Pituitary Body: Report of Case. W. G. A. Swan and G. E. Stephenson.—p. 372.
Treatment of Undulant Fever. J. E. Dehono.—p. 374.
Nature of Filtrable Tumor Exciting Agent in Avian Sarcomas. J. C. G. Ledingham and W. E. Gye.—p. 376.
*Secondary Marble Bones. F. P. Weber.—p. 377.

Treatment of Parathyroid Tetany.—Campbell reports two cases of parathyroid tetany in which there was complete achlorhydria. No examination of the gastric juice had been made before operation, so that it is impossible to say whether this achlorhydria was a result of the removal of the parathyroids. The severity of the symptoms depended not only on the actual content of the serum calcium but on slight shifts in the level. The symptoms seen, for example, when the serum

calcium was 7 mg. per hundred cubic centimeters and rising from a lower level were often much less than those exhibited when the serum calcium was between 8 and 9 mg. and falling. The author asserts that a good method of treatment is to present continuously to the intestine a large amount of calcium in the form of calcium chloride (150 grains, or 9.75 Gm., daily). This may be all that is required. But in cases in which this is not effective, and especially if achlorhydria is present, from 50 to 100 cc. of third normal hydrochloric acid should be given to increase the absorption of calcium. The acid is added to milk in the proportion of 1:20, when a curdled acid-tasting mixture is formed, which is pleasant enough to take.

Basophil Adenoma of the Pituitary Body.—Swan and Stephenson describe the case of a woman aged 30, who for four years had suffered from abdominal obesity, hirsutism and long periods of amenorrhea. The blood pressure was raised. Death occurred suddenly during an attack of pain, probably renal colic, nine days after a copious hematemesis. At necropsy the principal macroscopic changes were obesity, calculous pyonephrosis, cholelithiasis, acute gastric ulcer and enlargement of the anterior lobe of the pituitary body. Microscopically nearly the whole of the anterior lobe of the pituitary body consisted of an adenoma of the basophilic cells. The adrenals showed hypertrophy of the cortex. Renal changes were slight. There was evidence of osteoporosis.

Secondary Marble Bones.—Weber designates as osteoplastic reaction the profuse dissemination into the bones in some cases of primary prostatic carcinoma. The bones become infiltrated by millions of minute metastases, mostly smaller than miliary, many consisting of only a few cancer cells at the time of the patient's death. In such cases the disseminated cancer cells may excite a remarkable osteoplastic reaction, which causes the infiltrated bones to increase in density (carcinomatous osteosclerosis) by formation of new bone and deposition of bone salts. Roentgen examination in extreme examples shows the medullary cavity to be more or less obliterated, and from this point of view he suggests that the condition may be termed secondary or carcinomatous "marble bones" in contradistinction to primary "marble bones"—a developmental abnormality also called osteopetrosis or the Albers-Schönberg disease. He explains the cause of the remarkable osteoplastic reaction in the infiltrated bones in the following manner: The prostatic epithelium, if transplanted, would probably exert an osteogenic influence similar to that which has been experimentally demonstrated in the transplanted epithelium of the urinary bladder, ureter and renal pelvis by Huggins and others. It is generally recognized that cancer cells often retain some of the vital qualities peculiar to the cells from which they arise and it is not too much to suppose that the cancer cells in some cases of primary prostatic carcinoma still retain osteogenic properties—sufficient to give rise to hyperplastic osteosclerosis in the bones which they infiltrate. This would account for the fact that a hyperplastic osteosclerosis occurs far less frequently in association with cancerous metastases in bone from sources other than a prostatic carcinoma.

Medical Journal of Australia, Sydney

1: 133-164 (Feb. 2) 1935

*Homogeneous X Radiation in Biologic Experiments. C. E. Eddy.—p. 133.
Diagnosis and Treatment of Intracranial Tumors. E. Murphy.—p. 139.
Treatment of Intracranial Tumors. N. G. Sutton.—p. 142.

1: 165-196 (Feb. 9) 1935

Management of Breech Presentations. R. M. Allan.—p. 165.
Pulmonary Embolism. G. F. S. Davies.—p. 171.
Hepatic Cirrhosis with Splenomegaly in Children. W. S. Laurie.—p. 178.
Appendicitis at Provincial Hospital. K. Ross.—p. 179.

Homogeneous X Radiation in Biologic Experiments.—According to Eddy, since the intensity in any small wavelength range is always only a small portion of the total intensity of the x-ray beam, it is inevitable that any method of selecting a narrow band of wavelengths must give a beam of feeble intensity. It is desirable, therefore, to use x-ray tubes especially designed to operate continuously with large currents. When the wavelength range required includes the characteristic lines of an element, it is an advantage, if possible, to use that element as the target material. If the wavelength range is to be selected by means of a crystal, special care should be taken to exclude scattered radiation from the selecting slit, and the voltage should not exceed that necessary to excite second order radiation. If, in order to obtain beams of greater intensity, wide slits are used, the wavelength range of the selected beam is increased considerably. The only satisfactory method of determining the homogeneity of such a beam is by analysis with a suitably designed crystal spectrograph. If the filtration method of selecting a wavelength range is adopted, the necessary filter thickness can be calculated readily. The value of the voltage to be used should also be carefully selected in relation to the filter thickness, as the use of too high a voltage for any given filter thickness seriously affects the homogeneity of the beam. If a narrow range of wavelengths is to be used for biologic experiments in which a specific action with wavelength is suspected, it appears desirable that the actual range of wavelengths as well as the distribution of energy within that range should be determined. The success of a physical-biologic experiment can depend only on the success with which both the physical and the biologic portions have been planned.

Practitioner, London

134: 249-384 (March) 1935

Diagnosis of Anemias. A. E. Gow.—p. 249.
Value and Interpretation of Blood Counts with Notes on Technic. L. E. H. Whitby.—p. 262.
*Treatment of Pernicious Anemia. J. F. Wilkinson.—p. 272.
Agranulocytic Angina: Note. J. F. Wilkinson.—p. 283.
Anemia in Pregnancy. D. T. Davies.—p. 290.
Anemias of Infancy and Childhood. L. G. Parsons and W. C. Smallwood.—p. 298.
*Anemia Associated with Splenomegaly in Childhood. R. W. B. Ellis.—p. 317.
Indications and Technic for Blood Transfusion. F. A. Knott.—p. 331.
Chiropompholyx. H. C. Semon.—p. 347.
Differential Diagnosis of Graves' Disease. C. S. D. Don.—p. 352.
Favorite Prescriptions: III. Pharmacopeia of Royal Infirmary of Edinburgh. J. D. Comrie.—p. 360.

Treatment of Pernicious Anemia.—Wilkinson points out that the fundamental principles underlying the successful treatment of pernicious anemia imply the realization that the condition is a permanent deficiency disease requiring adequate replacement therapy for life. Treatment consists in the administration of one or more of the antianemic factors present in the stomach or liver, but they must be given in sufficiently large amount to maintain a normal blood picture and clinical condition. This can succeed only if therapeutically active preparations are used. The progress of the patient must be controlled by regular blood counts, at least every three or six months, and the dose of antianemic treatment increased or decreased accordingly. If there are any signs or symptoms, however slight, of involvement of the nervous system, the treatment must be continued in full doses without relaxation. The prognosis in uncomplicated cases of pernicious anemia is good, provided these points are borne in mind and adequate treatment with an active preparation is taken for the rest of the patient's life.

Anemia Associated with Splenomegaly in Childhood.—According to Ellis, the investigation of an infant or child suffering from anemia and splenomegaly will first necessitate the exclusion of a generalized infection. A clinical diagnosis of congenital syphilis or miliary tuberculosis will be confirmed by the Wassermann reaction or the Mantoux test, although the latter may be negative in the terminal stages of a generalized infection. A history and temperature suggestive of septicemia should call for a blood culture, and, whenever the diseases are endemic, infantile malaria or kala-azar should be suspected in any doubtful case and the blood or material from a splenic puncture should be examined for parasites. In any severe anemia, whether primary or secondary, transfusion may be required to save life and will frequently hasten recovery in the milder cases. Splenectomy is indicated in acholuric family jaundice, in Banti's disease and in splenic anemia when the platelets are reduced and in severe anemia secondary to hemorrhagic purpura (thrombocytopenic purpura). In general, iron may be expected to benefit only those cases of anemia which form the great majority in childhood and in which there is an iron deficiency, although recent work suggests that some benefit may be obtained from iron therapy in true splenic anemia.

Paris Médical

2 1: 165-180 (Feb. 23) 1935

Masked Form of Tonsillar Chancre: Bilateral Pseudophlegmonous Angina. P. Halbron and H.-P. Klotz.—p. 165.
*Frequency of Tuberculous Antecedents in Patients with Chronic Progressive Polyarthritis. F. Coste, P. Charmant and Viet.—p. 166.
Intravenous Carbon Injections in Acute Barbiturate Intoxication. B. Ménétrel.—p. 169.
Roentgenologic Examination of Lung. R. Benda, H. Mollard and R. Le Canuet.—p. 174.
Adie's Disease and Syphilitic Chorioretinitis. P. Harvier and G. Boudin. —p. 177.

Tuberculous Antecedents in Polyarthritis.—Coste and his co-workers studied the antecedents of 184 patients suffering from polyarthritis and 329 nontuberculous patients in order to determine the percentages of each exposed to the tubercle bacillus. They were classified in three groups: (1) subjects definitely exposed to personal or familial tuberculosis or having lived in prolonged tuberculous contact, (2) those for whom these conditions perhaps existed and (3) those without tuberculous antecedents. Of the 184 polyarthritic patients, 30.6 per cent were in the first group, 25.7 in the second and 44.2 in the third. Of the 329 other nontuberculous patients, 12.1 per cent were in the first group, 10.6 in the second and 77.2 in the third. There was thus a significantly higher percentage of polyarthritic patients exposed to tuberculosis than of the other patients. Although the number of patients was small, the authors believe that these observations should stimulate further studies of the possible relationship between tuberculosis and chronic polyarthritis.

Presse Médicale, Paris

43 1: 281-296 (Feb. 20) 1935

*Place of Phlebitis in Early Spontaneous Postoperative Evisceration. J. Ducuing.—p. 281.
*Prophylaxis of Accidents Due to Neoarsphenamine. J. Bénech.—p. 283.
Serous Meningitis of Poliomyelitis and Tuberculous Meningitis. B. Tasnovatz.—p. 285.

Phlebitis in Postoperative Evisceration. — Ducuing reports five cases of postoperative evisceration occurring relatively soon after the operation. In four of these, phlebitis had taken place. In three the preceding phlebitis of the pelvic-abdominal region had produced distention of the abdomen and urinary difficulties. The mechanism of evisceration in these cases is easy to explain on the basis of increased and constant traction on the sutures closing the abdominal wall. He does not believe that phlebitis is by any means the only cause of postoperative evisceration but feels that it is often more than coincidental.

Prophylaxis of Accidents Due to Neoarsphenamine.—The frequent toxic effects caused by the administration of neoarsphenamine induced Bénech to investigate preventive methods. He prepared ampules containing 5 cc. of a 4 per cent solution of aminoacetic acid as a diluent. One ampule suffices for doses of neoarsphenamine up to 0.75 Gm. and two ampules are used for larger doses. In one period of three months he treated twenty women more or less intolerant to the arsphenamines. One hundred and eight injections were given with this product. In sixteen cases the results were entirely and in four partially satisfactory. The explanation for these good results is still uncertain. It is possible that a solution of an amino acid is merely a better solvent than distilled water. Perhaps aminoacetic acid has a stimulating action on the antitoxic function of the liver. The author believes that this is the most likely explanation. It is also possible that aminoacetic acid acts directly on the metal and reduces its toxic properties. Whatever the explanation, it is certain that the results are good.

Policlinico, Rome

42 1: 129-196 (March 1) 1935. Medical Section

Biology of Megakaryocytes Surviving in Vitro: Action of Splenic Venous Blood. M. Torrioli and V. Puddu.—p. 129.
Dextrose Contents of Saliva. A. Luisada.—p. 134.
*Hemorrhagic Syndromes and Anemic Conditions in True Chronic Uremia. A. Gualdi.—p. 136.
*Mechanism of Action of Autohemotherapy in Cerebral Hemorrhage. G. Rabboni and S. E. Gurrieri.—p. 153.
Primary Sarcoma of Stomach: Cases. F. Guccione.—p. 168.

Hemorrhagic Syndromes and Anemia in True Chronic Uremia.—Gualdi studied the pathogenesis of the hemorrhagic syndromes and grave anemia in true chronic uremia. The toxic stage of true chronic uremia is characterized by humoral changes of a physicochemical nature, which originate essentially in the complete insufficiency of the kidney and partially in the insufficiency of the liver and cause, on the one hand, functional and histologic alterations of the bone marrow resulting in the development of grave anemia and, on the other, diffuse lesions of the capillaries resulting in the production of the hemorrhagic diathesis. The statement of the author is confirmed by clinical observations: Grave anemia and either cutaneous or mucous hemorrhages were seen in patients suffering from true chronic uremia secondary to renal insufficiency and did not appear in patients suffering from grave renal diseases but without true chronic uremia.

Autohemotherapy in Cerebral Hemorrhage. — Rabboni and Gurrieri determined the hemolytic power of the blood serum of sixteen hemiplegic patients before and after autohemotherapy. The presence of hemolysins and hemo-agglutinins before autohemotherapy in more than one third of the samples of serums and the appearance or increase of the same substances after autohemotherapy in about half the samples of the same serums led the author to believe that the mechanism of action of autohemotherapy in cerebral hemorrhage is of an immunobiochemical nature. The blood, on being reinjected, acts as a globular antigen resulting in the formation or the increase of hemolytic antibodies that reinforce the spontaneous globular lysis in the cerebral hemorrhagic foci and accelerate the reabsorption of the hemorrhage. It causes also humoral colloid modifications by which the equilibrium of the cerebral circulation is reestablished. A relation between the intensity of the hemolysis and the results of the treatment is not clear, although it seems to exist between the intensity of hemo-agglutinins and the results of the treatment. In the course of their studies the authors had the opportunity of confirming the reports of Colella and Pizzillo on the satisfactory results of autohemotherapy in hemiplegia, even in those forms that represent late results of cerebral hemorrhage. Seven hemiplegic patients out of a group of twelve who received the complete treatment long after the apoplectic attack occurred showed satisfactory results.

Riforma Medica, Naples

51 1: 197-236 (Feb. 9) 1935

Biologic Action of Short Waves: Action on Ferments. G. Izar and P. Moretti.—p. 199.
*Use of Alcoholic Extract of Urine in Biologic Diagnosis of Cancer. C. Negri.—p. 200.
Tuberculous Poisons in Etiology of Rickets. F. Figari and L. Sivori. —p. 205.
Chronic Gastritis. G. Benedetti.—p. 210.
Phlebitis and Postoperative Embolism and Their Prophylaxis. A. Parini.—p. 223.

Extract of Urine and the Diagnosis of Cancer.—Negri applied the biologic urine test of Aron for the diagnosis of cancer in ten patients. The test consists in adding in a large flask a quantity of freshly passed urine from suspected patients to three times its volume of 95 per cent alcohol. After shaking, a precipitate forms and settles slowly. After the sedimentation is completed the supernatant fluid is decanted. The remaining material is centrifugated. The precipitate is suspended in from 5 to 10 cc. of physiologic solution of sodium chloride for each hundred cubic centimeters of urine and the suspension is violently shaken for a long time. After filtration the active principle is found in the filtrate, to which is added a few drops of a 3 per cent solution of tricresol and which is kept in the refrigerator. The filtrate is injected subcutaneously in rabbits weighing from 1,500 to 2,000 Gm. It is advisable to administer to the animals the solution of the precipitate corresponding to from 750 to 1,000 cc. of urine. The injections are repeated for two or three days at least. Necropsy is performed two days after the last injection. The adrenals of the rabbits treated are removed, dissected and fixed for several hours in Zenker's solution formalized 7 : 100. Sections from 5 to 6 microns in thickness are cut and stained with an erythrosin stain. The author's results do not confirm those of Aron. According to the latter the reaction is positive when the spongiocytes of the fasciculated zone of the adrenal cortex lose their lipoid granulations and are stained so that the normally clear fasciculated zone becomes obscure; not one of the author's positive cases gave these results. The fasciculated

zone always presented a normal aspect with the cellular nucleus visible and finely reticulated protoplasm, vacuolated as much in rabbits treated with urine from cancerous patients as in the controls. The numerous histologic sections made of the hypophysis did not demonstrate the presence of pathologic processes in any of the animals. The only alteration that the author found in the reticular zone of the adrenal cortex was a degenerative process of the cells. This condition was established by seven of eight specimens of urine from patients with malignant disease. The author concludes that the injection of urinary extract according to Aron cannot be used as a means of excluding or confirming the possible presence of a malignant disease. The histologic changes that the treatment produces in the adrenal cortex are not sufficiently marked. The tests did not show any change in the fasciculated area but rather a degenerative process of cellular elements of the cortical reticular zone.

Archiv für klinische Chirurgie, Berlin

181: 479-598 (Feb. 20) 1935. Partial Index

*Pain Conducting Cutaneous Nerves as Cause of Neuralgia in Amputation Stump. A. G. Molotkoff.—p. 515.
Operative Treatment of Tuberculous Foci in Vicinity of a Joint, Particularly of Neck of Femur. K.-E. Herlyn.—p. 523.
Experimental Ulcer in Fasting Stomach. N. A. Bogoras.—p. 554.
Struma of Accessory Glomus Caroticum. F. Rössing.—p. 571.
*Total and Subtotal Thyroidectomy in Treatment of Heart Diseases and of Angina Pectoris. G. Bankoff.—p. 590.

Neuralgia of Amputation Stump.—The concept that neuralgias of the amputation stump are due principally to a neuroma of the larger nerve trunks, such as the sciatic, median, ulnar or radial, is not borne out by Molotkoff's investigations. The fact that the pains frequently appear shortly after the amputation, as well as the inability to relieve them by the various operations so far proposed, including chordotomy, precludes the plausibility of a neuroma. The author sees the cause of pain in the severance of the terminals of the pain conducting cutaneous nerves. The origin of the pain is to be found in the disturbance of the relationship between the pain conducting nerves on the one side and touch and temperature fibers on the other. Following an amputation there may exist two kinds of painful sensations, those projected in the missing portion of the limb and those localized in the stump. The author found that severing the obturator nerve just below the obturator canal relieves the pain projected to the internal malleolus, the inner aspect of the foot, the sole and the big toe, as well as the local pain affecting the mesial aspect of a stump of the thigh or the leg. For the pain projected to the external malleolus, the external aspect of the foot, the little toe and the lateral aspect of the sole, as well as for the pain localized to the outer aspect of the amputation scar, the author recommends sectioning the nervus cutaneus femoris lateralis. Severance of the nervus cutaneus antibrachii lateralis is advised for phantom pains of the amputated thumb, index and middle finger.

Thyroidectomy in Treatment of Heart Diseases.—Bankoff reports the results of total and subtotal thyroidectomy in two groups of patients. In the first group of twenty belonged older patients with advanced heart disease, angina pectoris and evidences of circulatory stasis. They were submitted to a total thyroidectomy. The basal metabolic rate in these patients was as a rule from 15 to 25 per cent above normal. Following the operation the basal metabolic rate fell to from 5 to 20 per cent below the normal, the pulse became slower, the blood pressure came down to normal, and the attacks of angina pectoris did not return. In the second group were ten patients, ranging in age from 19 to 30, who suffered from neurasthenia, tachycardia and an increased basal metabolic rate without, however, any signs of thyrotoxicosis or organic heart disease. The patients of this group were submitted to subtotal thyroidectomy. There were no deaths in either group. The patients with decompensated hearts showed marked improvement. There was disappearance of dyspnea, palpitations and edema. The patients of the second group were cured of their symptoms. The author recommends total thyroidectomy for cardiac patients in whom all medical therapy has failed to bring about an improvement. He recommends subtotal thyroidectomy for patients in whom medical treatment has failed to relieve tachycardia associated with neurasthenia and tremor.

Klinische Wochenschrift, Berlin

14: 329-360 (March 9) 1935. Partial Index

*Isolation of a Pseudospirochete from Circulating Blood in Disorder Resembling Recurrent Fever. H. Scholer.—p. 333.
Vitamin C in Urine of Healthy Persons and of Patients. W. von Drigalski.—p. 338.
*Observations on Antagonistic Action of Simple or Febrile Herpes in Acute and Chronic Infectious Diseases. O. Naegeli.—p. 341.
Determination of Blood Sugar According to Crecelius and Seifert. H. Rosegger.—p. 343.
Serologic Properties of Milk Lipoids. Y. Hiro.—p. 344.

Pseudospirochete in Blood in Disorder Resembling Recurrent Fever.—Scholer relates the history of a man, aged 64, whose disorder developed suddenly with severe headaches, fever, piercing pains in the epigastrium and in the umbilical region, and vomiting. On the sixth day diarrhea set in, but constipation followed hospitalization. Agglutination with three typhoid strains gave negative results. A swelling of the right leg developed, but the member was not sensitive to pressure and there were no signs of thrombosis. This swelling recurred. There were also recurrences of fever and of collapse-like conditions. The patient recovered in about two months. The case was diagnosed as severe general infection without primary lesion. Symptoms worthy of attention were irregular course of the temperature, a tendency to tachycardiac paroxysms, intercurrent pulmonary infiltration and pleurisy. The administration of arsphenamine was followed by rapid improvement. The first dose was followed by a strong reaction similar to that resulting from the administration of arsphenamine in recurrent fever. The author describes the isolation of the causal micro-organism. Cultures were possible under aerobic and anaerobic conditions, in well buffered, fluid mediums that contain protein or tissues. The organism is gram negative and readily stainable with the Giemsa stain. After the intraperitoneal introduction of the culture material in various species of animals, the organism appears in the blood or in the cerebrospinal fluid after various lengths of time. The author cites reports from the literature in which unusual types of spirochetes were discovered and emphasizes the necessity of making cultures in fluid mediums and of observing those cultures for a long time. He also stresses the favorable therapeutic action of neoarsphenamine in cases of general infection.

Antagonistic Action of Simple Herpes in Infectious Diseases.—Naegeli made observations which convinced him that the activated herpes virus plays an important part in the action of fever therapy of dementia paralytica. He observed rapid therapeutic effects when in the course of fever therapy a noticeable attack of herpes appeared. In a small number of patients, in whom herpes did not appear during malariotherapy and in whom the effects of the therapy were negative, the transmission of herpes and the subsequent activation with fever therapy resulted in an improvement of the clinical picture. Statistics indicate that infections of the cerebrospinal fluid are less frequent in patients with herpes than in patients without herpes. Moreover, in countries in which syphilis is frequent but in which malaria is endemic and herpes rather frequent, late syphilis is almost absent in spite of the inadequate treatment of early syphilis. Tabes and dementia paralytica are more frequent in men than in women, whereas in women there is a greater incidence of herpetic manifestations. Herpes, although comparatively harmless for human subjects, may cause fatal encephalitis in rabbits. Thus it is possible that the herpes virus is capable of destroying spirochetes. The author thinks that the remissions and cures of dementia paralytica are not the result of the malaria because its action is regional, as only the spirochetes in the brain are killed and not those in the skin and in the internal organs. Although the cerebrospinal fluid may become seronegative, malariotherapy does not change a positive blood Wassermann reaction into a negative one. Moreover, results similar to those obtained with malariotherapy can be produced with recurrent fever, with rat bite fever and even with coli-vaccine. In this connection he points out that the endovenous administration of coli-vaccine results in attacks of herpes more often than the administration of any other vaccine. The author believes that infection and fever production are only indirect therapeutic factors, in that they activate the herpes virus, which exists in the latent stage in many human beings.

Medizinische Klinik, Berlin

31: 301-332 (March 8) 1935. Partial Index

Colloidochemical Problems in Medicine. K. Hinsberg.—p. 301.
*Large Respiratory Minute Volume, with Especial Consideration of Case of Poisoning with Acetylsalicylic Acid. A. Sylla.—p. 314.
Evacuation and Irrigation in Pleural Exudates in Artificial Pneumothorax. E. Kornitzer.—p. 318.

Large Respiratory Minute Volume.—Sylla states that an enlarged respiratory minute volume is frequently observed during rest. In many cases with slight increases, the cause is to be found in hyperventilation developing as the result of psychic or motor unrest. This hyperventilation leads to an increase of the carbon dioxide elimination by the respiratory air and of the respiratory quotient above 1. If hyperventilation persists for a longer period, blood alkalosis (acapnia) results. Slight increases of the respiratory exchange in hyperventilation, characterized by a large respiratory minute volume and by an increased respiratory equivalent (above 3.5), are caused by the enlargement of the respiratory quotient and by the greater effort caused by the hyperventilation. In the determination of the basal metabolism it is therefore advisable to calculate also the respiratory minute volume and the respiratory quotient, the more so since the additional effort is slight. Unusually large respiratory minute volumes with great respiratory quotients are observed in severe acidoses of the blood (uremia and hepatic and diabetic comas). In cases of poisoning, deviations are observed. The author demonstrates in several cases that, as the result of a central irritation, a large respiratory minute volume may develop without an increased respiratory quotient and that, on the other hand, in spite of a severe acidosis of the blood there may be no hyperventilation, probably because the irritability of the respiratory center has been reduced. The respiratory minute volume is generally considerably larger when air is inhaled than when pure oxygen is inhaled. The respiratory quotient shows the corresponding behavior. The opposite behavior is observed in lesions of the respiratory center.

Monatsschrift für Kinderheilkunde, Berlin

61: 241-320 (Feb. 22) 1935. Partial Index

Hormone Regulation of Blood Sugar in Nurslings. H. Schönfeld.—p. 241.
*Pathogenesis of Erythema Nodosum. Annemarie Goldberg-Curth.—p. 249.
Poisoning During Childhood. H. Tunger.—p. 268.
Evaluation of Diphtheria Antitoxin in Serum and Vaccination Experiments with Concentrated and Purified Form of Formol Toxoid. H. Holzapfel.—p. 280.

Pathogenesis of Erythema Nodosum.—Goldberg-Curth shows that true idiopathic erythema nodosum is a cutaneous reaction to an infection the pathogenic organism of which is as yet unknown. Symptomatic erythema nodosum may develop in the course of nearly every infectious disease and as a cutaneous reaction to toxic substances. During childhood the majority of cases of erythema nodosum are closely related to a tuberculous process, quite frequently to a primary tuberculous process. Erythema nodosum in tuberculous children does not necessarily imply an unfavorable prognosis. Tubercle bacilli are frequently demonstrable in the fluid obtained from gastric irrigation of these children. The detection of bacilli in the blood or the cultivation of bacilli from erythema nodules are not definite proof of the tuberculous nature of the skin disorder. Quite often it is possible to detect a source of infection in the environment of the patient, and occasionally several cases are seen in one family. Clinical and roentgenologic signs of pulmonary tuberculosis are quite frequent in the course of erythema nodosum, but signs of extrathoracic tuberculosis are rather rare. During the stage of prodromal fever there is frequently a change in the formerly negative tuberculin reaction. Prophylactic vaccination with B C G apparently can prevent the appearance of erythema nodosum as well as of a positive tuberculin reaction, in spite of a strong source of infection. The author thinks that all forms of erythema nodosum are indications of a change in the allergic condition of the organism. She rejects the true tuberculous nature of the disorder but admits that cases which present the clinical aspects of erythema nodosum and the pathologic histologic aspects of the tuberculids, although rare, do occur. The assumption that erythema nodosum is caused by a tuberculous filtrable ultravirus has not been proved as yet. It appears that the polymorph erythemas are closely related to erythema nodosum, for here too the eruption of erythema is accompanied by fluctuations of the allergy in tuberculous patients. The high incidence of erythema nodosum in the nordic countries permits the assumption of a racial predisposition (in blond persons). Moreover, this predisposition may explain also the greater incidence during childhood.

Münchener medizinische Wochenschrift, Munich

82: 325-364 (Feb. 28) 1935. Partial Index

Allergic Gastro-Intestinal Disturbances. K. Hermann.—p. 327.
Treatment of Cystitis. W. Grossmann.—p. 329.
Significance of Trichomonas Vaginalis as Cause of Purulent Colpitis and of "Nonspecific" Urethritis in Men. Balkow.—p. 331.
Shortcomings in Asepsis. O. Maier.—p. 332.
*Chronic Intestinal Disturbances and Amebic Infections. O. Fischer.—p. 336.

Chronic Intestinal Disturbances and Amebic Infections.—Fischer gives the history of a man who, during the war, contracted malaria and paratyphoid. The intestinal disturbances never ceased completely. The disorder was never completely clarified until the patient was subjected to a thorough examination in an institute for tropical diseases. Amebas were discovered in the stool. The dysenteric symptoms yielded quickly to treatment. The author emphasizes that, if patients who at one time have been in the tropics have chronic complaints, it is absolutely necessary that they be subjected to a thorough examination by a physician who is familiar with tropical diseases.

Wiener Archiv für innere Medizin, Vienna

28: 161-320 (Feb. 20) 1935. Partial Index

Morphologic and Functional Roentgenologic Aspects of Gastro-Intestinal Tract in Pernicious Anemia. R. Pape.—p. 161.
*Ovarian Cycle and Carbohydrate Metabolism: Course of Glycemic Reaction Following Dextrose Tolerance Test During Normal Cycle. J. Blöch and A. Bergel.—p. 233.
Respiratory Chemistry and Mechanism of Asthmatic Patients in High Altitude Climate and During Changes to Different Altitudes. E. Witthower and R. Wolfer.—p. 241.
*Ossification of Iliolumbar Ligament. V. Miller.—p. 259.
*Ovarian Cycle and Carbohydrate Metabolism: Galactose Tolerance. J. Blöch and A. Bergel.—p. 267.
Thyroid and Circulation. F. Kisch.—p. 297.

Glycemic Reaction During Menstrual Cycle.—Blöch and Bergel show that during the premenstrual and the menstrual period of women with a normal cycle the glycemic reaction, following a dextrose tolerance test, is different from that observed during the interval. This difference in the glycemic reaction is neither the result of menstrual impairment of the hepatic parenchyma nor caused by abnormal resorptive conditions in the gastro-intestinal tract but is the manifestation of an increased irritability of the autonomic nervous system. The menstrual changes in the glycemic reaction consist in an increased hyperglycemia, an earlier maximal increase, a noticeable hypoglycemic phase and occasionally the formation of a second peak. These abnormalities of the menstrual glycemic reaction are found especially in women with sympathetic dysharmony, in whom menstruation is frequently accompanied by alimentary glycosuria.

Ossification of Iliolumbar Ligament.—Miller agrees with Lowman and Steindler, who consider anomalies in the taxing or in the static-mechanical factors the most important causes of the calcification or ossification of the iliolumbar ligament. Moreover, it seems that inflammatory processes are an etiologic factor; but it cannot be definitely determined whether in this case the ossification is likewise a static one that effects immobilization of the joint or relieves the joint. To what extent anomalies of formation are involved cannot be estimated as yet, but this possibility cannot be entirely disregarded. This theory, which considers the ossification primarily a reparative process, makes an operative intervention on the ligament seem undesirable in the majority of cases.

Ovarian Cycle and Galactose Tolerance.—Blöch and Bergel describe their studies on galactose assimilation during the ovarian cycle. They found that it was increased during the premenstrual and the menstrual periods. They show that this increase is not caused by a direct hepatotropic action of the ovarian hormone but is rather the manifestation of a condition of the neurosympathetic and hormone systems that prevails during these phases of the ovarian cycle.

Wiener klinische Wochenschrift, Vienna

48: 257-288 (March 1) 1935. Partial Index

Prophylaxis in Obstetrics. V. Hiess.—p. 266.
*Relations Between Schick Test, Antitoxin Titer and Susceptibility to Diphtheria. C. N. Leach and G. Pöch.—p. 271.
Radical Treatment of Varicose Veins. L. Moszkowicz.—p. 274.
*Treatment of Traumatic Wounds and Their Sequels. H. Kunz.—p. 274.

Schick Test and Susceptibility to Diphtheria.—Leach and Pöch point out that Schick and Michiels maintained that a negative Schick test indicates an antitoxin titer of not less than 0.03 antitoxin unit for each cubic centimeter of serum. Later the lower limit of protective action, the so-called Schick threshold, was placed at 0.02 and then at 0.01 antitoxin unit for each cubic centimeter of serum. However, it was found that a negative Schick test does not exclude the possibility of contracting diphtheria. In studies on 4,800 children the authors found that seven children with a negative Schick test developed diphtheria. They further report studies on 215 children. Not only were these children subjected to Schick tests but their blood was carefully examined for its antitoxin content. It was found that in 13.6 per cent of those with a negative Schick test the antitoxin content of the blood was below the minimum required for protection. The authors conclude that the negative Schick test is not entirely reliable as regards the susceptibility for diphtheria as well as the antitoxin content, but they think that a positive Schick test indicates definitely a susceptibility for diphtheria.

Treatment of Traumatic Wounds.—After discussing wound excision according to Friedrich, Kunz evaluates the seroprophylaxis of tetanus and says that it is not necessary in every open wound. He maintains that the danger of tetanus is slight in industrial injuries, particularly in those occurring in the metal industry. In severe street accidents, however, seroprophylaxis is necessary, and it is advisable to protect the patient also against gas gangrene, although the prophylaxis of the latter does not always preclude its development. With regard to wound infection, the author says that the old surgical methods (incision and drainage) are still the most widely used. However, in some clinics the incision with the electric knife is now employed only for certain types of wounds. Open wound treatment in combination with continuous irrigation or with the water bed is found effective, particularly in sanious wounds of the region of the pelvis. The cod liver oil bandage according to Löhr is used with good success in the treatment of large infected wound cavities and of tissue defects. In the treatment of pyogenic general infections, early and repeated blood transfusions are the most effective method. The author emphasizes that the opinion of the uselessness of serotherapy of manifest tetanus is incorrect, and he advises intensive treatment. Intravenous, intramuscular and intraspinal injections of serum should be given several days in succession. Serotherapy is likewise advisable in gas gangrene.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

98: 645-804 (Feb. 20) 1935. Partial Index

Change of Pulse Energy with Advancing Age. J. Mesonyi and G. Berencsy.—p. 666.
Connection Between Carbon Dioxide Content of Blood and Formation of Hydrochloric Acid in Stomach. J. Mesonyi, L. Günther and J. Petrányi.—p. 670.
*Influence of Small Doses of Parathyroid Extract on Magnesium in Organism. M. Coppo and M. Pisa.—p. 675.
Modification of Respiration of Liver of Rats by Serum of Healthy and Diseased Persons: Attempts to Characterize Serum of Tuberculous Patients in Metabolic Test. B. Wahhard.—p. 682.
*Modification of Antibody Concentration by Specific Desensitization in Pollen Allergy. G. Albus.—p. 703.
*Spleen and Water Exchange. R. Tislowitz.—p. 708.

Influence of Small Doses of Parathyroid Extract on Magnesium.—Coppo and Pisa described studies on the magnesium in rats treated with small doses of parathyroid extract, which produce a noticeable reduction in the magnesium content of the organism. An analysis of the values in the different rats disclosed that the only animal in which the ash residue revealed no increase in calcium lacked also a reduction in the magnesium content. Moreover, the magnesium content showed the greatest decrease in cases in which the calcium values showed the greatest increase. A survey of all these observations discloses that even small amounts of parathyroid extract produce changes in the mineral constituents, an increase in the calcium and a reduction in the magnesium content. The authors conclude that their analyses furnish an important contribution to the theory that assumes a direct relation between the function of the parathyroids and the biochemistry of magnesium.

Desensitization in Pollen Allergy.—Albus points out that the specific desensitization of hay fever patients by means of pollen extract has proved of practical value, but that the objective proof of its action is still lacking. It was his aim to furnish this proof. He mentions two theories that have been advanced to explain the mode of action of desensitization and then describes studies proving clearly that the treatment with pollen extracts exerts a noticeable influence on the reactions of the sensitized organism, in that it neutralizes the antibodies lodged in the cells and thus effects a reduction in the antibody values. He thinks that his studies prove the second of the two theories, according to which the antigen (pollen extract) reaches the cellular antibodies in subthreshold value and neutralizes them, so to speak, which becomes manifest in a reduction of the antibodies. If now allergen enters again, it finds no reactive counterpart, there is no antigen-antibody reaction and allergic manifestations do not develop. Thus the practicability of the active desensitization has been proved objectively.

The Spleen and Water Exchange.—Tislowitz describes studies demonstrating that spleen extracts increase the water storage of the tissues, reduce the circulating quantity of water and inhibit diuresis. He maintains that the spleen is important in the mechanism of the water exchange not only as a depot organ but also because it is a part of the reticulo-endothelial system. He says that further investigations will have to prove whether the reticulo-endothelial system has a mechanical storage action or whether the reaction of the vessels (similar to the blockage of the hepatic veins) plays a more important part.

Zentralblatt für Gynäkologie, Leipzig

59: 481-544 (March 2) 1935. Partial Index

*New Transperitoneal Operation for Juxtavesical Ureteral Calculi in Women. O. Kneise.—p. 483.
Artificial Formation of Sphincter in Urinary Incontinence in Women (Plastic Operation on Pyramidal Fascia of Bladder). N. P. Werhatzky.—p. 489.
Transvesical Diaphanoscopy. H. Hellendall.—p. 505.

Operation for Juxtavesical Ureteral Calculi.—Kneise points out that juxtavesical ureteral calculi can be removed by lumbo-abdominal, extraperitoneal ureterolithotomy and by the vaginal route. He thinks that the vaginal method is inadvisable in the majority of cases and that in cases in which the extraperitoneal operation involves too many difficulties (particularly in stout women) only the transperitoneal method remains. The latter method has certain disadvantages. One is the danger of peritoneal infection in case an infection exists; however, the author does not consider this danger grave. Another shortcoming is that in cases in which the juxtavesical calculus is from 4 to 5 cm. away from the bladder the uterine adnexa of the involved side are in the way, and some surgeons resort to their extirpation. The author considers this unjustified and describes a method by which he removed a ureteral calculus that was wedged in 4 cm. away from the ureteral ostium. He opens the abdomen in the median line or by a suprasymphysial transverse incision. Then he grasps with a strong clamp the round ligament of the side on which the calculus is located and draws the uterus upward and outward. Thus the anterior portion of Douglas' pouch is exposed and occasionally the stone can be felt. Then the vesical peritoneum is opened and the bladder is pushed downward. The peritoneum is pushed aside from the ureter and gradually the stone is reached. The site at which the uterine vessels cross the ureter comes into the operative field. They are not doubly severed but are pushed upward, so that they disappear under the round ligament and the peritoneum. Thus the only vessel that remains in the operative field is the superior vesical artery. If the calculus is large and can be felt, it is unnecessary to remove much of the ureter from its surrounding connective tissue. Before the ureter is opened the pelvis is slightly more elevated, and careful tamponade is done. Then the ureter is incised, the calculus removed, the patency of the ureter verified and the wound sutured. The author says that the operation presents no difficulties for any

one familiar with Wertheim's operation. He emphasizes that the operation is intended only for the juxtavesical concrements that are not more than 4 or 5 cm. removed from the vesical ostium.

Klinicheskaya Meditsina, Moscow

13: 1-158 (Jan.) 1935. Partial Index

*Determination of Velocity of Circulation in Functional Diagnosis of Circulation. A. N. Berinskaya and T. I. Meerzon.—p. 70.
Carotid Reflex of Hering in Pulmonary Tuberculosis. I. G. Gavrilman. p. 76.
Cardiac Stasis in Roentgenologic Demonstration. A. A. Gorodetskiy. —p. 84.
Effect of Sulphur on Animal Organism and on Hematopoietic System. M. Ya. Tronn.—p. 91.
*Parenteral Administration of Extract of Convallaria Root. B. E. Votchal and Ts. Ya. Kogan.—p. 114.

Velocity of Circulation.—Berinskaya and Meerzon studied the velocity of circulation in 162 patients, utilizing Leschke's method, which consists of a rapid injection in the cubital vein of from 0.6 to 1 cc. of a 50 per cent solution of calcium chloride. This is followed in a few seconds by a sensation of heat felt, as a rule, first in the tongue and next in the throat, perineum, chest, abdomen, hands and feet. In a group of healthy persons and in patients presenting no involvement of the cardiovascular system the velocity of circulation varied from ten to fifteen seconds, the average being 11.5. In a group having compensated cardiovascular lesions the velocity of circulation was from ten to seventeen seconds, the average being 12.2. In a group of patients with signs of decompensation the velocity of circulation varied from thirteen to forty-four seconds, giving an average of 20.1. The authors conclude that circulatory insufficiency results in slowing of the velocity of circulation and that the greater the decompensation the more pronounced the slowing. Marked slowing of velocity has a bad prognostic significance. Acceleration of the velocity following any therapeutic procedure denotes its effectiveness and suggests a favorable prognosis. The authors point out the following disadvantages of Leschke's method: irritation of the endothelial lining of the vessel by the highly concentrated calcium chloride solution, necessity for rapid injection into the vein which may lead to paravenous spilling and necrosis, and possibility of thrombosis.

Parenteral Administration of Extract of Convallaria Root.—Votchal and Kogan report their results with parenteral administration of a new fluidextract of the root of Convallaria majalis in twenty-six patients having decompensated hearts. They state that, although it is almost without any effect when given by mouth, it possesses all the effects of the digitalis group when administered parenterally. Its more rapid effect, shorter duration than that of digitalis, pronounced negative dromotropic effect and insignificant cumulation bring it closer to strophanthin. The same care in dosage must be exercised when giving it as with strophanthin because of rapidly developing signs of intoxication in case of an overdose. While evanescent, the symptoms are those of involvement of the path of conduction of the heart beat and may lead to ventricular fibrillation. The authors recommend hypodermic administration. The maximal dose is 40 frog units. They state that in some of their cases its diuretic effect was greater than that of digitalis or strophanthin. In addition, it has a soothing effect approaching that of a hypnotic state. Because of these properties, it is suggested as a substitute for strophanthin.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

79: 1073-1196 (March 16) 1935

Psychic Disturbances in Weil's Disease. L. Bouman.—p. 1078.
Multiple Extragenital Primary Lesions. H. J. T. Hiemcke.—p. 1085.
*Dissociated Skin Reaction. H. D. Boer and F. J. H. Van Deinse.—p. 1094.
Palpable Differences in Rheumatic Muscular Pains and Manual Massage. C. M. Beubers.—p. 1103.
Digital Fracture. K. A. Rombach.—p. 1112.

Dissociated Skin Reaction.—Boer and Van Deinse report the clinical and bacteriologic observations on a child, aged 8, presenting a dissociated skin reaction. The patient was completely insensitive to human and bovine tuberculin, even in strong concentrations (1:100) injected intradermally. When an intradermal injection of 0.1 cc. of a culture filtrate of tubercle bacilli sterilized by heat was administered, the patient showed a marked positive reaction. The citrated blood of the patient cultivated on a Besredka medium gave three times a culture of acid and alcohol resisting strains which were not transferable by inoculation or pathogenic to guinea-pigs. Injections of the patient's sputum in guinea-pigs did not occasion tuberculosis in the animals; when, however, the same guinea-pigs were later given two injections weekly of an acetone extract of tubercle bacilli, permanent tuberculous lesions appeared. The authors isolated from these lesions several tubercle bacilli cultures with special characteristics similar to those described by Valtis and Van Deinse (*Compt. rend. Soc. de biol.* **113**:847, 1933) and found by these authors in guinea-pigs infected with filtrates and treated with acetone extract.

Finska Lakaresallskapets Handlingar, Helsingfors

77: 1-70 (Jan.) 1935

Endo-Urethral Prostatic Resection. L. J. Lindström.—p. 32.
*Two More Unusual Complications in Delivery. J. Meyer.—p. 46.
Sight Exercises in Crossed Amblyopia and Their Result. S. Sonnius. —p. 51.

Two Unusual Complications in Delivery.—In a secundipara in whom deep episiotomy was done at the first delivery, the head pressed strongly against the perineum and during a powerful bearing down pain was expelled through the perineum, the body following easily. In a primipara the rectovaginal septum was ruptured during a strong bearing down pain after the buttock had shown itself at the vulva, and the entire right leg of the child appeared through the anal opening. Delivery was spontaneous. The anal sphincter was intact. The place of rupture in the perineum was passable for three fingers. Meyer ascribes the rupture to the unfavorable position of the right leg of the fetus, which in the breech presentation had exerted an unequal pressure on the rectovaginal septum during the bearing down pains.

Hospitalstidende, Copenhagen

78: 169-196 (Feb. 12) 1935

*Fulminant Tonsillopulmonary Toxemia in Infancy. L. Heerup.—p. 169.
*Concentration Index of Urea and Its Significance in Surgery. E. W. Gøthgen.—p. 181.

Fulminant Tonsillopulmonary Toxemia in Infancy.—Heerup treats of a violent, acute, sporadic or nosocomial infection, usually fatal within twenty-four hours, in children less than 18 months of age who have in most cases had several catarrhal infections. Clinically, he says, a septic, hyperpyretic picture without demonstrable focal disorders is seen. Pathoanatomically there is a mild tonsillopharyngitis and a hyperemic-edematous change in the lungs. On bacteriologic necropsy (systematic bacteriologic excision of specimens in sterile necropsy with the organs in situ), tonsils and lungs show massive growth of staphylococci, streptococci and pneumococci. In theoretical explanation the author considers the possibility of increased virulence of the microbes resulting from infection transmitted from child to child, or (and?) an allergic pulmonary edema due to sensitization, with diffuse spread of microbes in the lung tissue, and a violent resorption of toxin from the tonsils and lungs.

Concentration Index of Urea and Its Significance in Surgery.—Gøthgen considers this index a better indication of the immediate condition after operation than that afforded by determination of the blood urea alone. Proper evaluation of the results calls for repeated examinations. The urea concentration index is the relation of the grams per hundred cubic centimeters of urea in the urine to the grams per hundred cubic centimeters of urea in the blood. In bed patients with normal kidneys the index is about 50. With small diuresis and marked urea formation it may rise to more than 100. Values below 30 are seen only when the diuresis is extremely high. The author finds that after operation there are in patients with previously normal kidneys (1) normal urea in the blood and index of more than 100 in the first period or (2) slightly increased urea in the blood and index between from 50 to 100, indicating a complication, or index of less than 30, pointing to a more serious complication and grave prognosis if the index continues low, or (3) marked increase in the urea in the blood with low index, often below 10, showing a grave, often irreparable complication and extremely grave prognosis.